

HOYA NEW



Hoya heuschkeliana Kloppenburg 1990

Oh There it is !

A pdf publication devoted to the Genus

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Editor: Dale Kloppenburg

Contents

When a species is collected from the wild, I feel it is wise to identify it, propagate it and name it. In this way it will eventually get it into commercial channels, be distributed to all those interested in this genus and thus be preserved. If in the future the species is lost through natural causes or forest destruction it will still be here on earth in your collection.

The following new species are presented in PDF format with ISSN number. Check posting on my website “<http://.hoyardk.wix.com/Kloppenburg>” under publications.

1. ***Hoya calyxminuta*** Kloppingurg 2017
2. ***Hoya annaleesoligamae*** Kloppenburg 2017
3. ***Hoya baguioensis*** Kloppenburg 2017
4. ***Hoya sabaensis*** Kloppenburg 2017
5. ***Hoya gretherii*** Kloppenburg 2017
6. ***Hoya corollavillosa*** Kloppenburg 2017
7. ***Hoya samoensis* subsp. *savai'iensis*** Kloppenburg 2017
8. ***Hoya olosegaensis*** Kloppenburg 2017
9. ***Hoya luatekensis*** Kloppenburg 2017
10. ***Hoya whistlerii* subsp. *faleuluensis*** Kloppenburg 2017

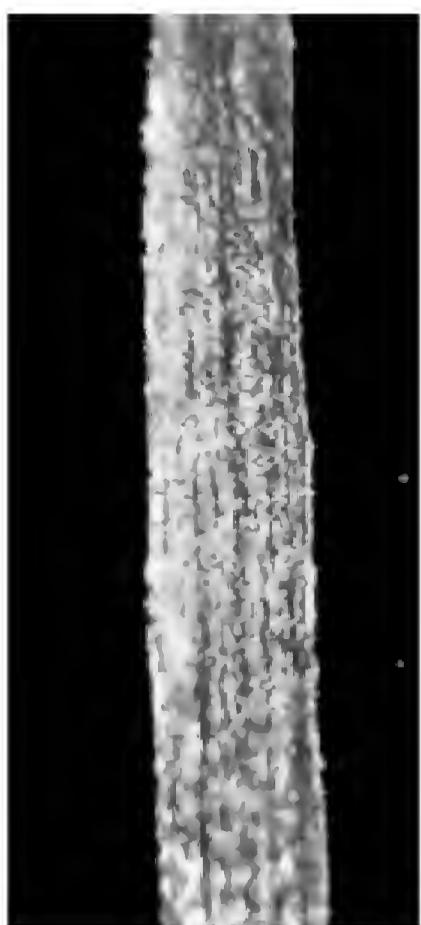
Hoya calyxminuta Kloppenburg 2017

ISSN 2329-7336

Hoya calyxminuta Kloppenburg sp nova, holotypus #5970 (CAHUP) hic designatus. Calyx lobus minuta, basis latis triangularis ciliatis; foliis; ellipticus ovatis, apice cuspidate 9.39-11.33 cm longis et 6.47-7.28 latis, glabris, textura crasse coriaceis, pinnatinervis 40° conspicuis, costa prominens. Petiolo brevi, 0.08 cm longus; pedicellis strict filiformibus teretibus, puberulus; corolla usque infra medium 5-fida, extus glabra, intus minutissime et aequaliter puberulosa, circ. 1.70 cm diametente complinatus, coronae lobus horizontalibus interior apice spatulatus, dorso leviter concavus. Pollinaria differo a speciebus.

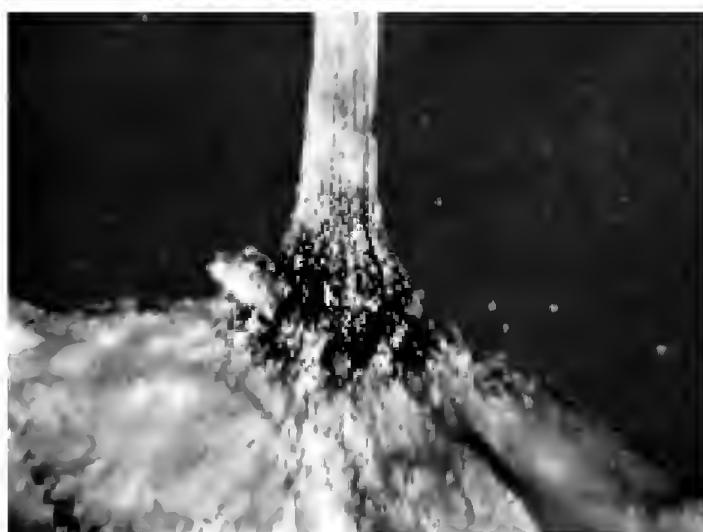
This sp was labeled Hoya pubicalyx Merrill. The leaf base is similar but the apex is not acuminate which eliminates it as this sp.. The corolla surfaces are also similar. The pollinia measurements and structure differ from all other hoyo species.

Hoya sp. CAHUP 5970



Not correct as H. pubicalyx.

Pedicel enlarged about 16x. Is 2.2 cm long 0.05 cm in diameter, terete, slightly puberulent, enlarging toward the calyx.



Pedicel calyx and corolla enlarged about 8x. The calyx is small on drying dark colored. This is an extremely small calyx.

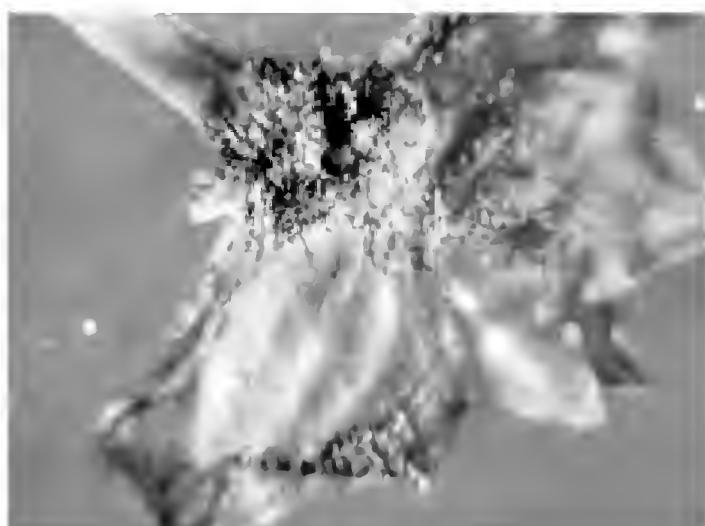


Side view of the calyx enlarged about 16x. Lobes are very short, triangular ciliate, outside surface granulate 0.10 cm long and 0.07 cm wide at the base.

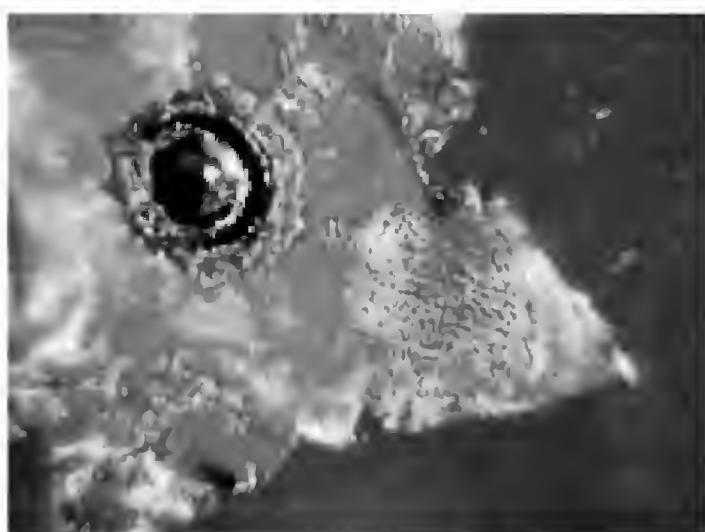


Calyx showing the ovaries nearly hidden by the small sepals enlarged about 8x.

Ovaries: short dome shaped 0.05 cm tall and base pair 0.05 cm wide.

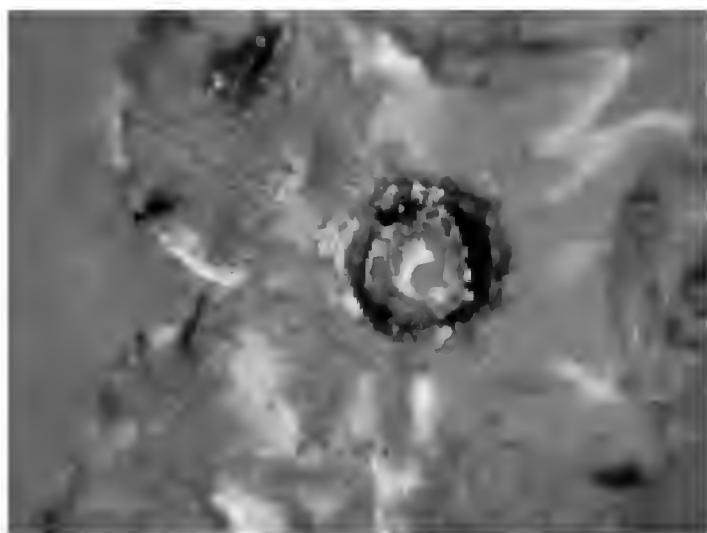


Outside surface of the flower enlarged about 8x. The coronal scales exceed the corolla sinuses, here seen in the lower right center as the yellow apex protruding from the sinus area. Corolla outside is finely granulose, glabrous, cut slightly more than half way.

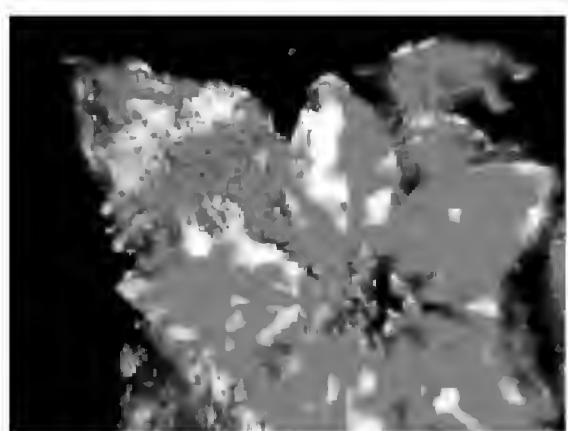


Outside of corolla showing the lob apex and center. Lobes are acute and not excessively broad, sinuses not conduplicate.

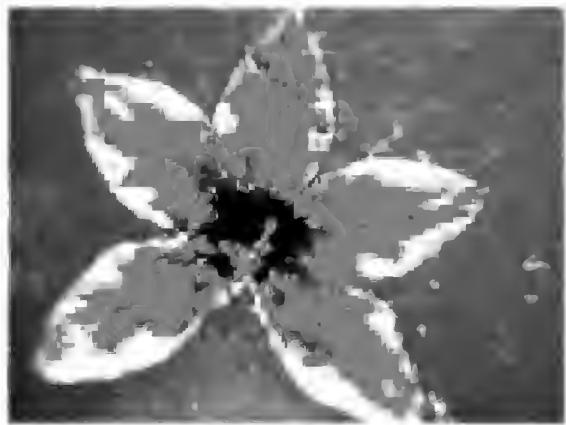
Sinus – sinus	0.35 cm
Sinus – center	0.25 cm
Sinus – apex	0.35 cm
Apex – center	0.85 cm
Widest	0.33 cm



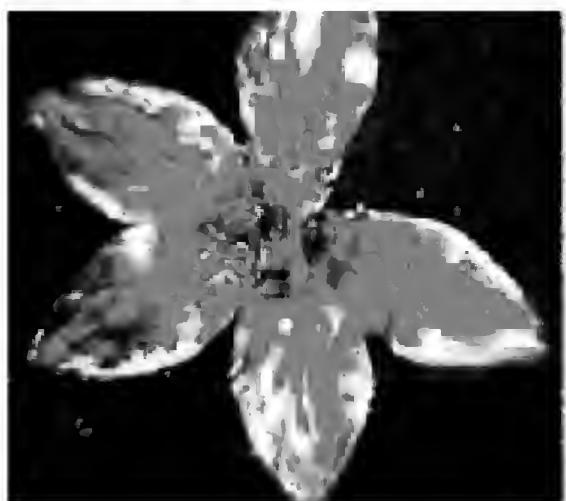
Inside view of the corolla enlarged about 8x. Surface is finely puberulent, central region under the corona less so. Center is collar thickened



Inside view of the flower with the corona enlarged about 8x. Coronal lobes exceed the corolla sinuses, are sub acute and emarginate, glabrous, dorsal concave slightly with a median ridge, inner lobes do not quite reach the center and are spatulate. Longitudinally sulcate.

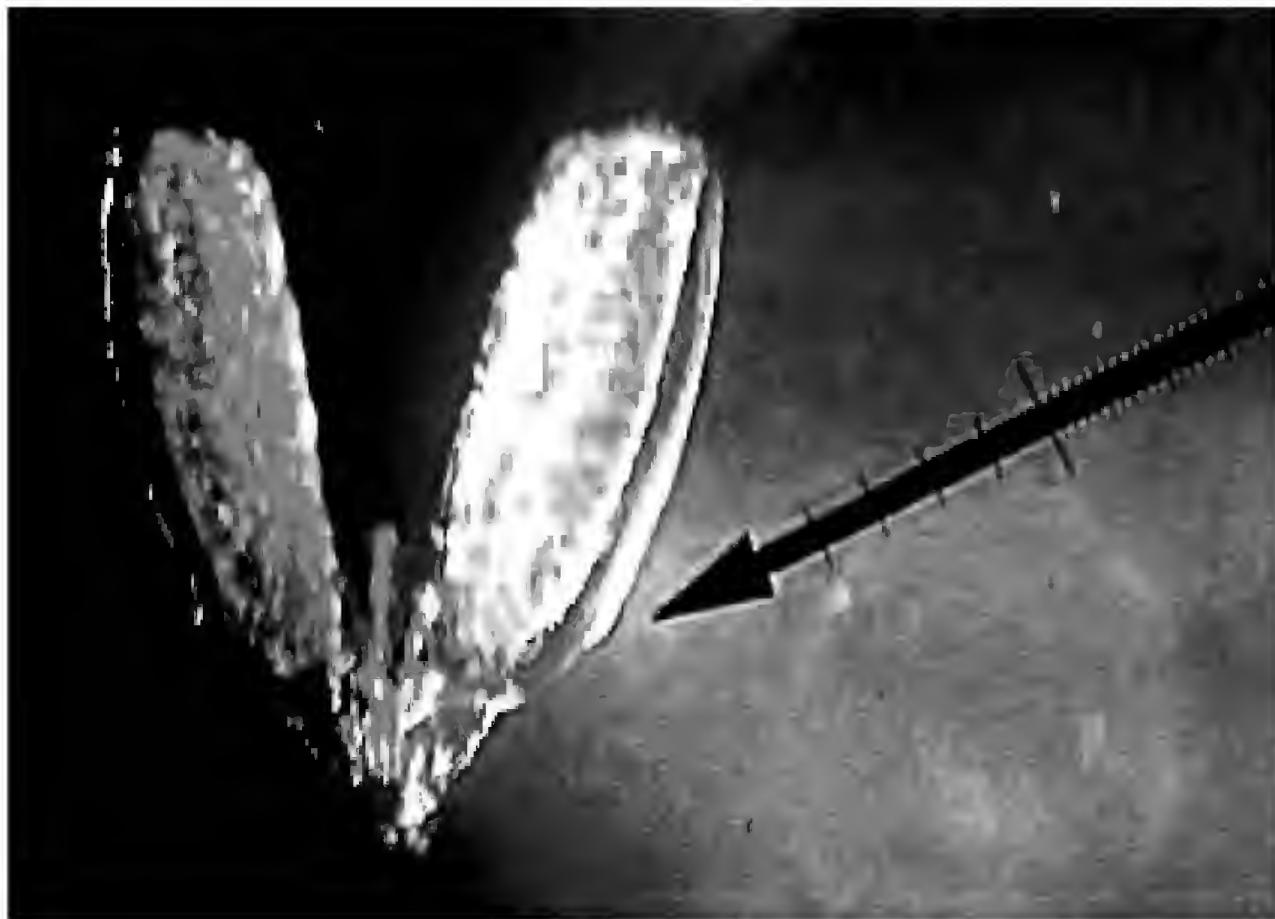


Bottom view of the corona enlarged about 8x. Scales are channeled to near the central thickened column. Scales are thin and outer apex on drying splits.



Top view of the corona enlarged about 8x.

Apex – apex	0.22 cm
Apex – center	0.24 cm
Widest	0.17 cm
Ret- ret	0.10 cm
Ret – center	0.07 cm
Aw. – aw.	0.20 cm



Pollinaria
enlarged about 165x.

Pollinium

length	0.50 mm
widest	0.16 mm

Retinaculum

length to crotch	0.20 mm
shoulders	0.08 mm
waist	0.05 mm
hip	0.09 mm
extensions	0.03 mm

Translators

length	0.08 mm
depth	0.03 mm

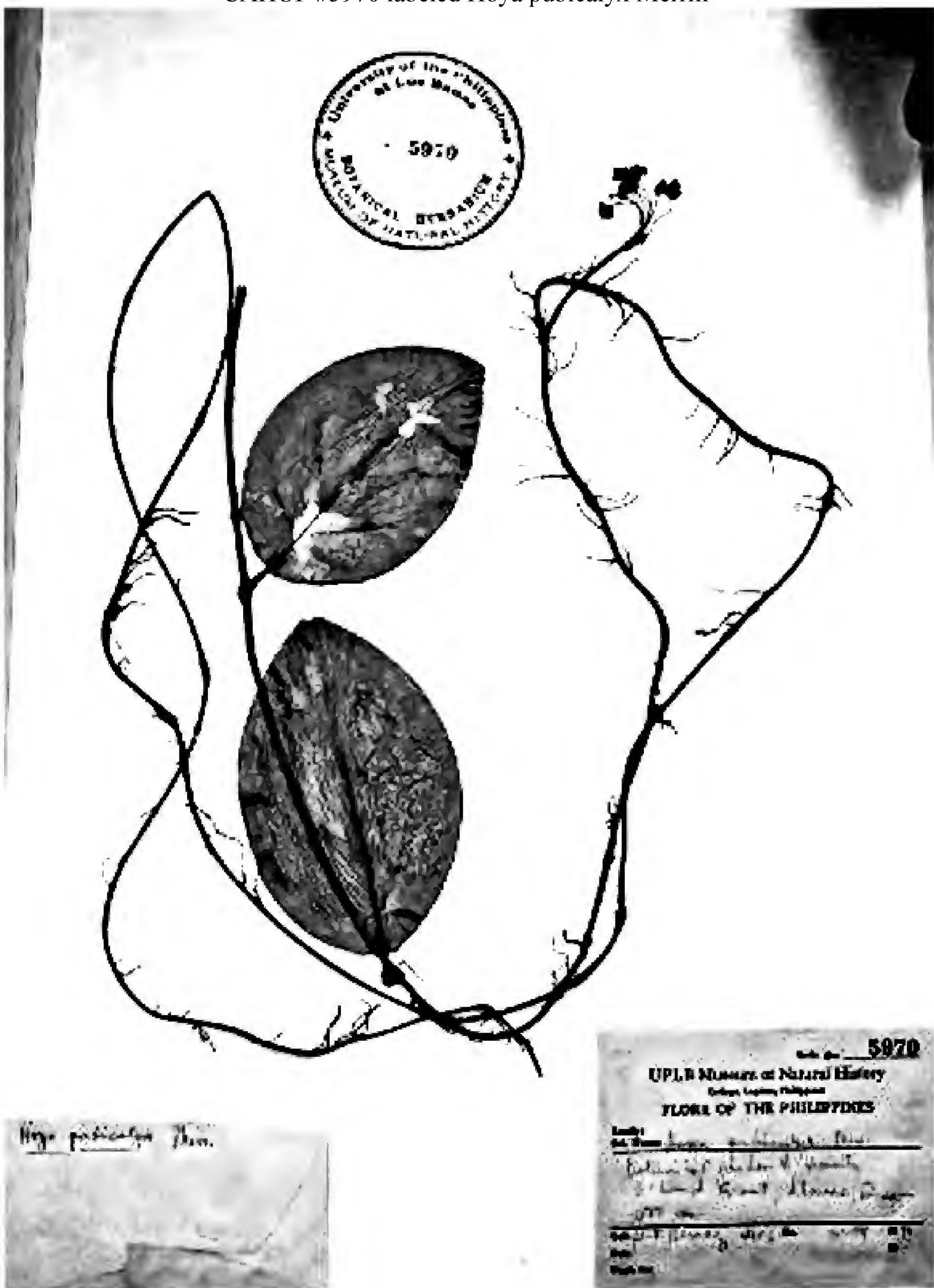
Caudicle bulb diam. ca. 0.04 mm

Translator/caudicle type: p/o

Retinaculum type: E & HB

Pollinia inner ends: T

CAHUP #5970 labeled *Hoya pubicalyx* Merrill



Measurements from the above herbarium sheet.

Stems with many adventitious roots, variable inter-node length.

Peduncle: 3.9 cm long here and slightly curved, slightly smaller diameter than the stems.

Rachis: here appears bracteate, 0.8 cm long.

Pedicels: hear ca. 2.1 cm long.

Petioles strict from enlarged nodes 0.8 cm long.

Leaf blades glabrous broadly ovate, apex and base obtuse, pinnate nervation ca. 40°, midrib prominent. 9.39-11.33 cm long and 6.47-7.28 at the widest about the middle.

Hoya annaleesoligamae Kloppenburg 2017
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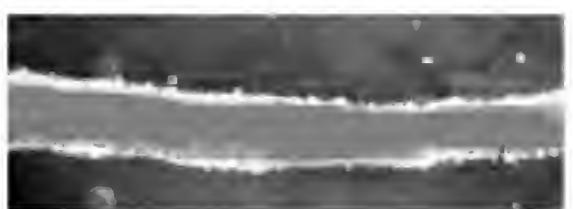
Hoya annaleesoligamae Kloppenburg, sp. nova, holotypus #63927 (CAHUP).
Folio coriaceo glabro eliptico 4.7-8.8 cm longo, 2.2-3.7 cm lato, apiice acuminato, basi rotundato 5-nervis, (pentinervio) reticulo, pedicello ca. 3.3 cm longo, glabro, calyx 0.07 x 0.04 cm longis, late triangularibus. Corollae lobus late, triangularibus, rotate reflexa; circ. 0.60 cm diametente complanatus, extus glabra, intus puberulent, Coronae lobus subhorizontalibus, superne ellipticus, apice anteriore clavatus, dorso longitudinaliter carinatus, apice posteriore subacutisis non recurvato, subitus canaliculatio.

Photos of flower part:



Pedicel, calyx and ovaries side view enlarged about 16x. Calyx is broad triangular 0.07 cm long 0.04 cm wide near base, overlap slightly, terete, outside granulose, ciliate. inside glabrous. I did not see any ligules.

Ovaries columnar 0.07 cm tall and base pair 0.05 cm wide, glabrous, drying dark colored.

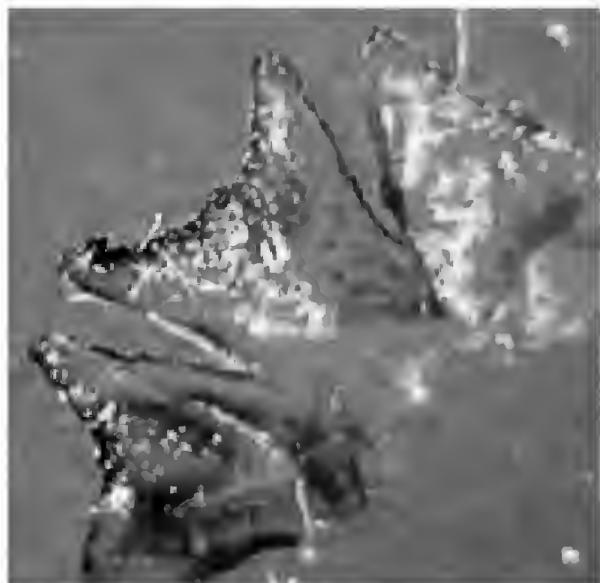


Pedicel side view enlarged about 16x. is strict, appears glabrous but microscopic enlargement shows it is finely puberulous. 1.8 cm long, terete, 0.04 cm in diameter.

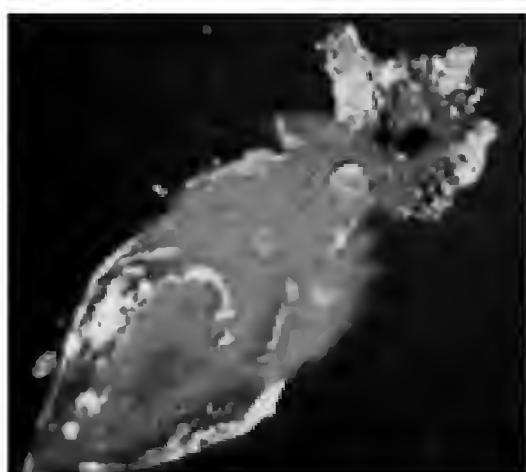


Outside view of the flower enlarged about 8x. The corolla folds inward over the corona on drying. Coronal lobes just exceed the corolla sinuses. Corolla cut very deeply, collar thickened.

Sinus – sinus	0.14 cm
Sinus – center	0.12 cm
Apex – center	0.30 cm
Widest	0.24 cm



Inside view of the corolla with the lobes turned inward. Outside surface is granulose, glabrous: inside finely puberulent. Lobes are deeply cut, more than half way. Lobe apices are acute, tissue thick.



Top view of a coronal scale and the pentagonal stylar crown to the upper right enlarged at least 16x. Stylar crown is raised apiculate, inner coronal lobe is round to dentate, outer lobe is subacute with some depth to the apex. Dorsal surface is concave with a central raised portion from outer apex to where inner lobe extends forward. Scale is thin, inner lobes touch in the center.

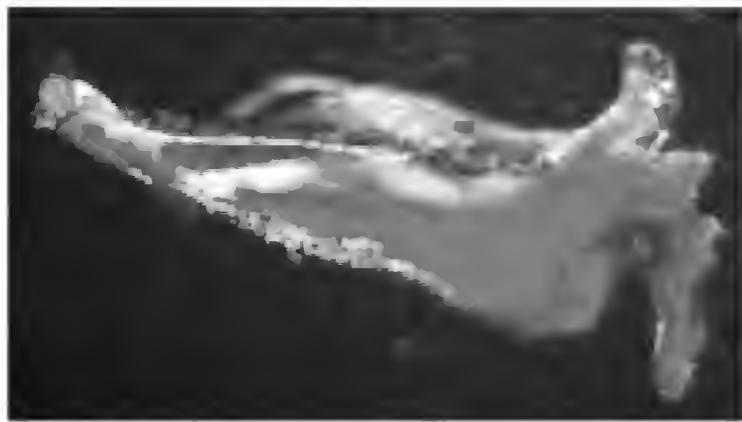


Corona bottom view enlarged about 8x. Lobes are channeled, center is a column 0.05 cm tall opening is 0.08 x 0.10 cm, scale sides are sulcate. Anther wings not prominent.

Apex – apex	0.25 cm
Widest	0.13 cm
Ret. – ret	0.05 cm
Ret. – center	0.03 cm
Aw. – aw.	0.12 cm
Aw- - center	0.10 cm



Inside (top) view of the corona enlarged about 8x. Lobes are glabrous, inner lobes touch in the center. Retinacula close to center, anther wings not prominent. Outer apex is subacute.



Side view of a coronal lobe enlarged about 32x. Lobes are thin, inner lobe here appears to be clavate, raise, outer apex subacute here seems slightly rounded. Anther wings not deeply curved.



Pollinarium enlarged about 165x.

Pollinium

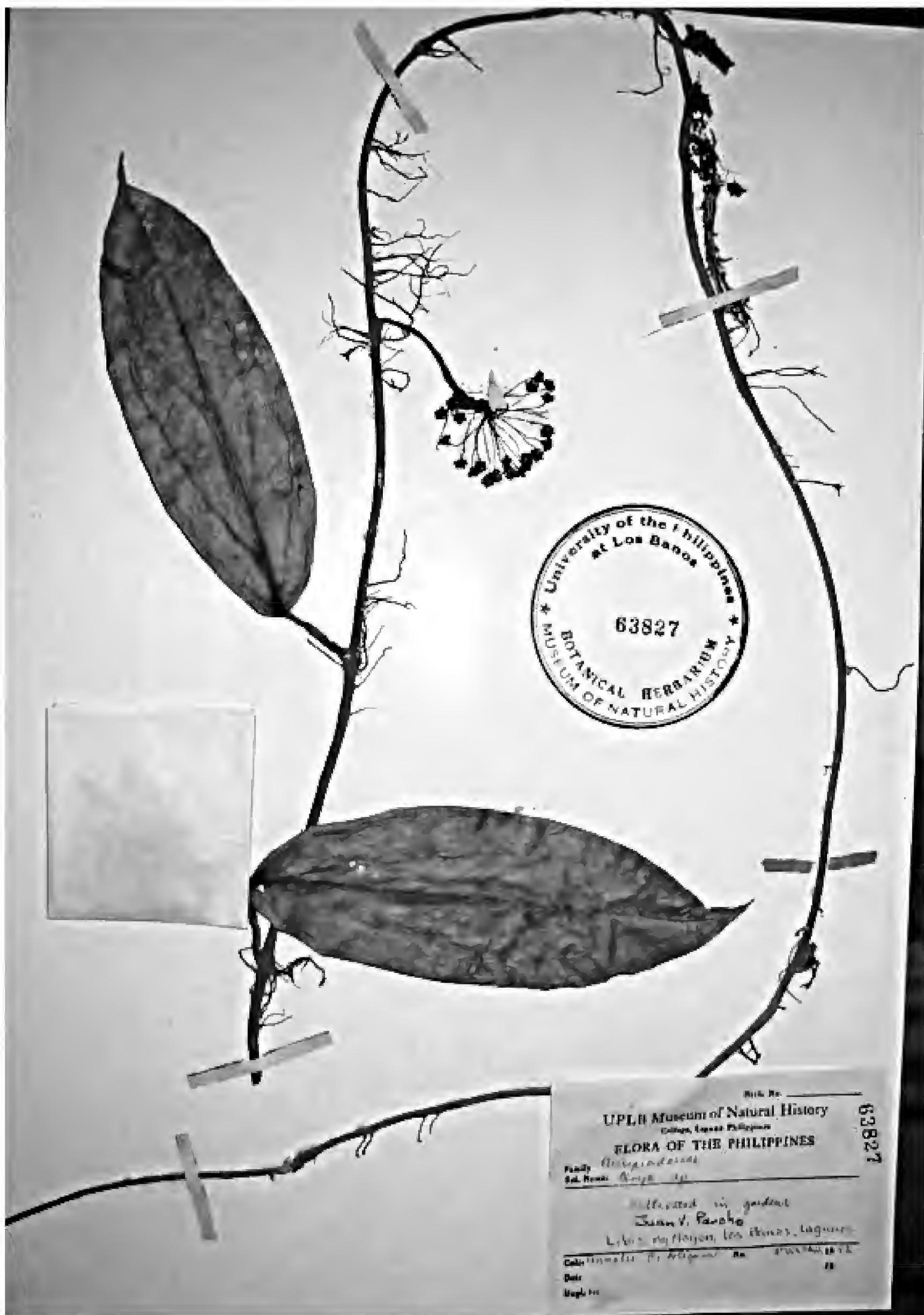
length	0.42 mm
widest	0.15 mm

Retinaculum

length	0.18 mm
shoulder	0.07 mm
waist	0.04 mm
hip	0.07 mm
ext.	0.04 mm

Translators	length	0.04 mm	Ratio: ret length/ poll. length 2.3
	depth	0.02 mm	pol. width/pol. length 2.8
Caudicle			Bulb: C
	bulb diam.	0.05 mm	
Translator/caudicle type:	d/o		Retinacula type: E
Pollinia inner end type:	T		
<p>Notations from Dr. Monina Siar UPLB. Collected from Juan Pancho's garden at Libis 12 March 1982 by Annalee Soligam. Leaves are elliptic-lanceolate when dry measure 15 cm long and 5 cm at the widest. 2-3 prominent longitudinal nerves and some along the midrib.</p>			
Peduncle:	ca. 3.3 cm long.		
Rachis:	ca here 1.32 cm long looks fasciculate.		
Leaf petiole:	3.1 cm long .		
Internodes:	mostly 10 cm long, many adventitious roots, some even branching.		
Leaves:	with narrow apiculate apices, edges turn under slightly.		
<p>Globose flower clusters, ca 24.</p>			

Reduced copy of the type sheet CAHUP 63827



Hoya baguioensis Kloppenburg sp nova, holotypus #5270 (CAHUP) hic designatus. *Pollinia similis* **Hoya rima** Kloppenburg, Mendoza & Ferreras 2014 et **Hoya brevialata** Kleijn & van Donkelaar 1999 et **Hoya panayensis** Kloppenburg & Siar 2009 sed non Sect. *Acanthostemma*. *Frutex scandens*, inflorescentiis exceptis glabra, ramis teretibus, pedicillis 1.8 cm longus et 0.04 cm diametro; calyces segmentis triangularis glabris apice sub-rotundatus 0.10 cm longis et 0.08 cm latis; corolla usque infra medium pentagonus-fida, extus granulatus-punctatus, intus pubescentibus, 0.80 cm diametro complanatus, lobis late ovatis, acutis ca. 0.32 cm longis; coroaae foliolis horizontalibus, apice sub-obtusiss, dorso anguste ellipticus, concavis, angulo interiore spatulatea, subtus canaliculatam.

Photographed on 5/20/06 at Fresno, CA. Collected by Maximo Wayet at Baguio Village, Querino, Luzon, Philippines, elev. 150m, 6 Jan. 1990. Leaf large palmate, 18 x 2.3 cm petiole .27 cm grooved above. Peduncle 2.0 cm with double rachis 0.2 cm long.

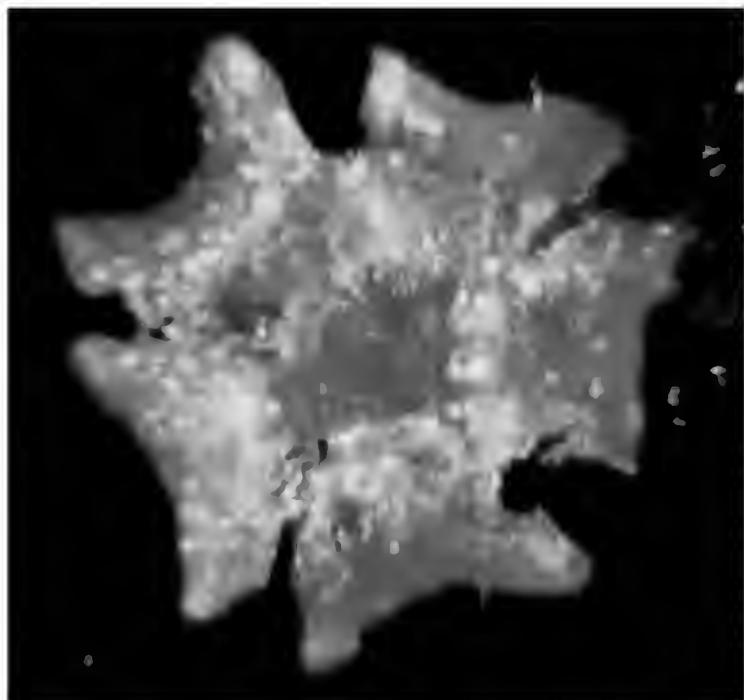


Pedicel enlarged about 8x. 1.8 cm long and 0.04 cm in diameter. Glabrous, curved a little.



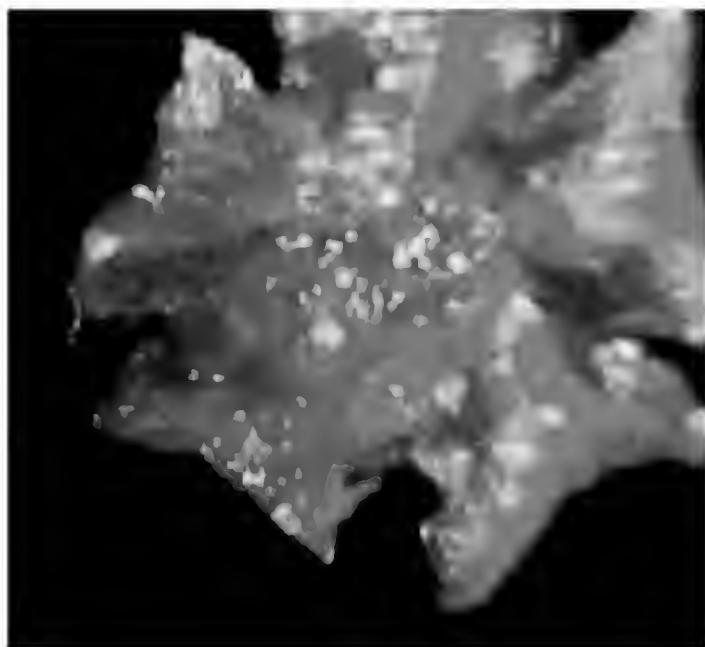
Pedicel and calyx enlarged about 8x. Sepals are triangular, glabrous, reach the corolla sinuses, entire edges, overlap slightly at base. Ovaries columnar 0.08 cm tall and 0.07 cm at the base of pair.

Sepals: 0.10 cm long, apex narrowly rounded base 0.08 cm wide.



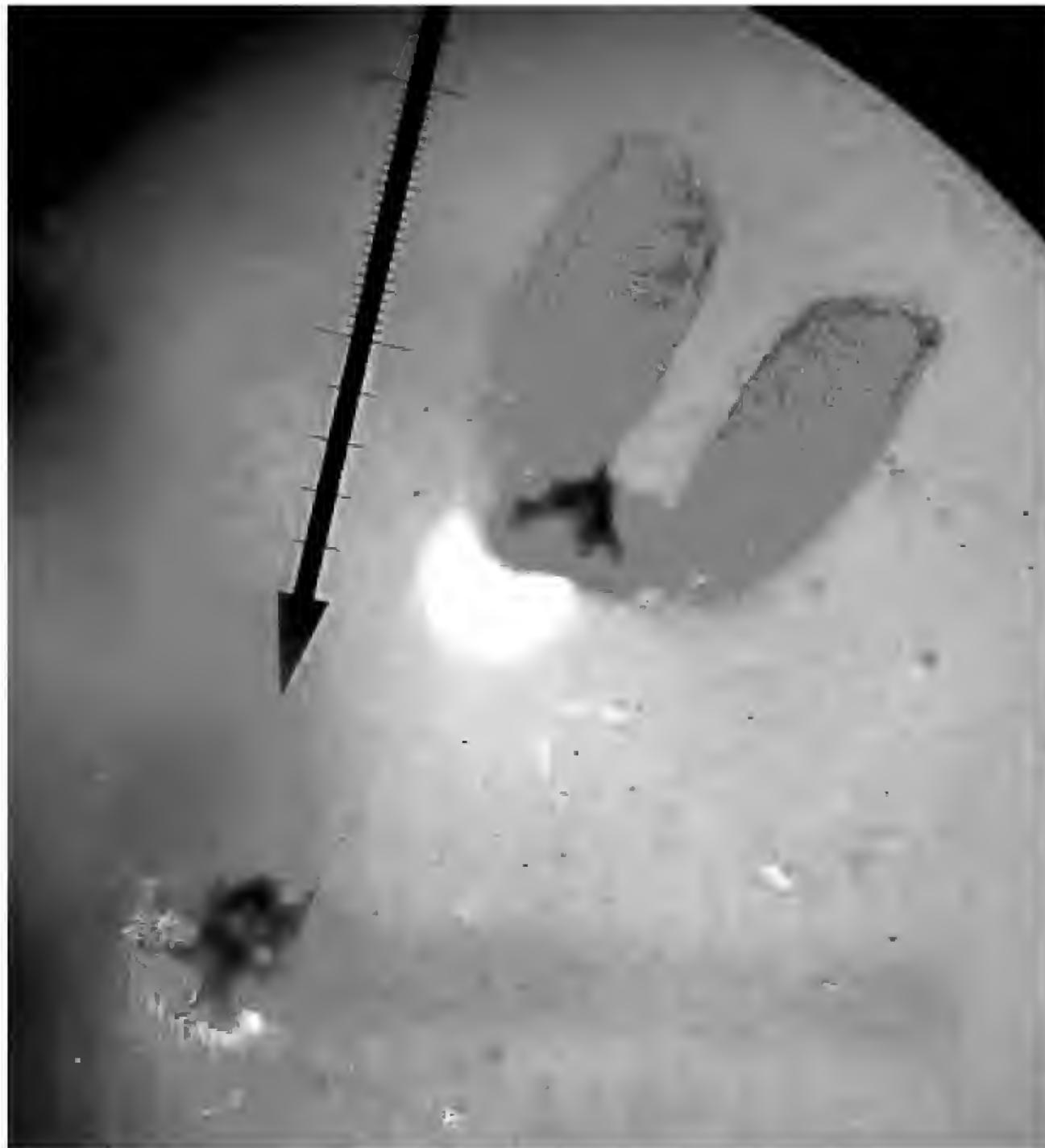
Corolla outside surface enlarged about 16x. Surface is granulose-punctate, glabrous. Center is a little thickened, a collar protruding out (convex) 0.03 cm tall. Lobes deeply cut and widest $\frac{1}{2}$ way out from the sinuses. Inside appears finely puberulous.

Sinus – sinus	0.15 cm
Sinus - center	0.15 cm
Sinus – apex	0.30 cm
Apex – center	0.40 cm
Widest	0.25 cm



Inside view of the corolla with part of corona with one scale to the lower left. The scale is elliptic with the dorsal concave a forward umbo and a slight keel in the center. Outer apex narrowly obtuse, inner lobe appears to be spatulate and does not reach the center, glabrous.

Apex – apex	0.25 cm
Apex – center	0.28 cm
Widest	0.10 cm



Pollinum
enlarged about
165x.

One retinaculum
turned on the axis
but I was able to
find a second
retinaculum.

Pollinium
length 0.37 mm
widest 0.14 mm

Retinaculum
length 0.16 mm
shoulder 0.12 mm
waist 0.06 mm
hip 0.08 mm
ext. 0.05 mm

Translator
length 0.11 mm
depth 0.04 mm

Caudicle
bulb diam. 0.05mm

Translator/caudicle type: ls/o ?

Retinacula type: HU

Pollinia inner end type: RT

Hoya sabaensis Kloppenburg sp. nova, holotypus #24031 (PNH) hic designatis. Pollinaria differt nihil ullus alius hoya, pollinium 0.78 mm longus et 0.25 mm latus et translatoribus P (perpendicularris) et caudiculae lobus rotundus, granulatus.

This new hoya species has a pollinaria that is unique as there is no other hoya at this time having a pollinia that is 0.78 mm long and at the widest 0.25 mm also with translator/caudicle p/o (translator perpendicular and caudicle bulb oval and granulate). This hoya was collected in Kinabalu, Sabah. Malaysia.

Leaf: elliptic acuminate at apex 4+ primary pinnate nerves on each side of the midrib, anastomosing looping back from the leaf edge. Nerves most prominent on the underside when dry. 5.5 cm long 2.5 cm at the widest near the middle, both surfaces glabrous. 6/11/06 It seems to me without a pict. of the foliage this is close to the Philippine *H. densifolia*.

Pedicle: terete, glabrous 3.5 cm long

Calyx: 1/2 way to the corolla sinuses, ciliate, triangular shaped. Center to apex 0.25 cm long 0.12 cm at the widest near the base.

Ovaries: slender tapered 0.15 cm tall and the base pair 0.12 cm wide, glabrous.

Corolla: Pubescent inside especially the edges, outside granulose.

Widest	0.70 cm
Sinus -sinus	0.68 cm
Sinus - center	0.60 cm
Apex - center	1.20 cm

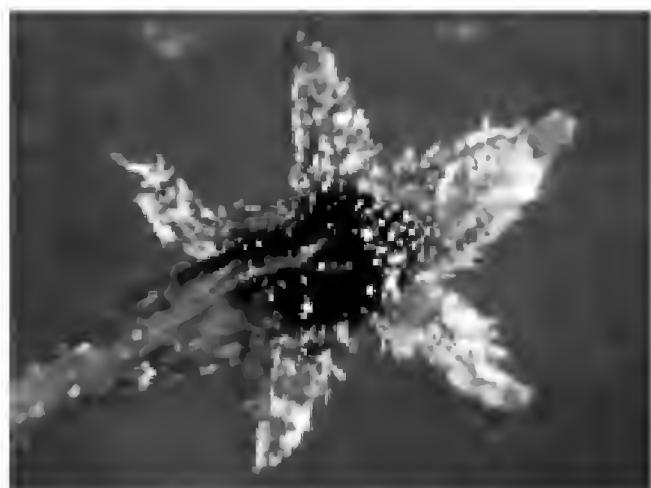
Corona: Just reaches the corolla sinuses. Outer lobe obtuse, inner lobe spatulate and touches in the center.

Apex - center	0.55 cm
Widest	0.18 cm

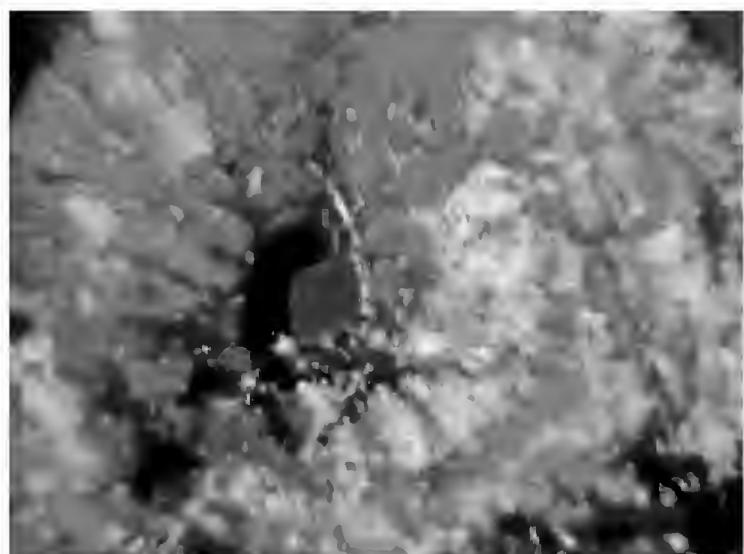
Digital micrographs follow: All enlarged about 16x.



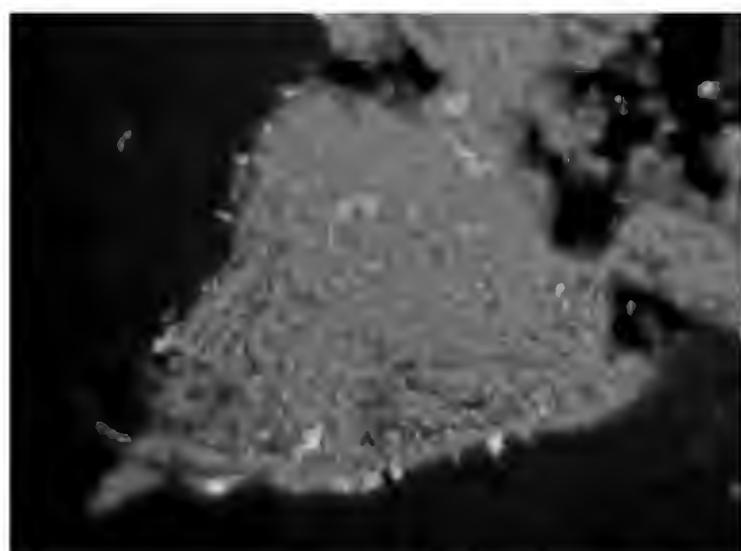
Pedicels are curved and glabrous. Small hairs seen are from static dust from tissue paper.



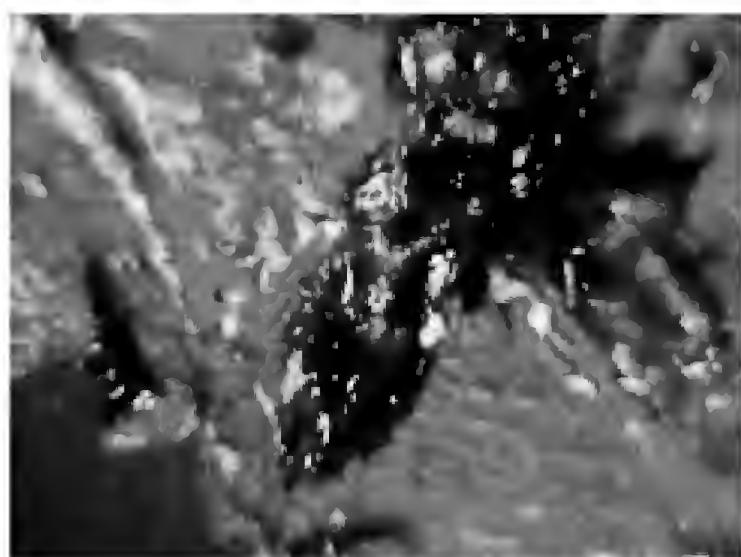
Calyx outside view at pedicel attachment. Pedicel thickens near the calyx. Calyx is thickened centrally with margins membranous. Edges ciliate otherwise outer surface is granulose. Inside glabrous and smooth.



Corolla center outside surface. Slightly thickened in center, surface rough but glabrous.



Corolla deeply cut. Lobe outside surface, granulose with ciliate edges, from upper surface indumentum.



Top view of the corona and corolla. Inner corolla surface is pubescent, heaviest near edged. Corona with one scale removed. Scales are large, outer apex obtuse, dorsal concave, inner lobe is spatulate and reaches the center, a dark color (red?).



Bottom view of the corona. Surfaces are all glabrous, channeled below. Center column thickened and relatively large.



Top view of the corona. Inner lobes are spatulate and touch in the center. Outer apex is obtuse. The anther wings are well developed and with thick sides, to the right center, dried and spread apart between the 2 scales.



Pollinarium enlarged about 165x

Pollinium

length	0.78 mm
widest	0.25 mm

Retinaculum

length	0.14 mm
shoulder	0.13 mm
waist	0.08 mm
hip	0.09 mm
ext.	0.04 mm

Translators

length	0.08 mm
depth	0.02 mm

Caudicle

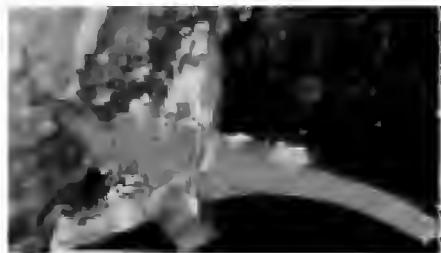
bulb diam.	0.04 mm
granulate	

Translator/caudicle type: p/o

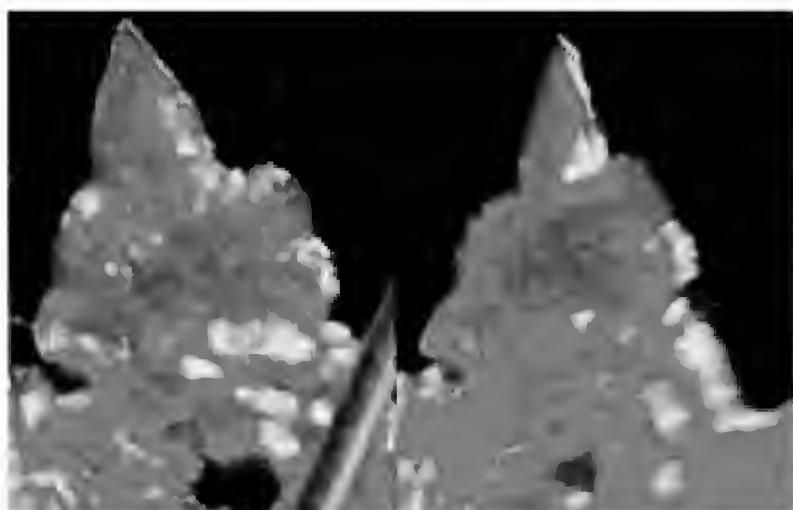
Pollinia inner end type: R

Hoya gretherii Kloppenburg sp. nova, holotypus #3949 (UC) hic designatus, Collected by D. F. Grether & W. H. Wagner, Los Negros, Pitilu Lagoon, Philippines 8 Nov. 194?. Only one other hoyia sp. with a pollinia 0.57 mm long and 0.25 mm wide and that is *Hoya tannaensis* T. Green & Kloppenburg. Sepals are similar but larger 0.20 x 0.10 cm versus 0.17 x 0.12 cm and the corolla is much smaller in diameter 1.70 cm versus 2.82 cm and here the coronal lobes although similar in shape are smaller Apex – apex 0.20 cm versus 0.32.

Photos and measurements of parts follow:

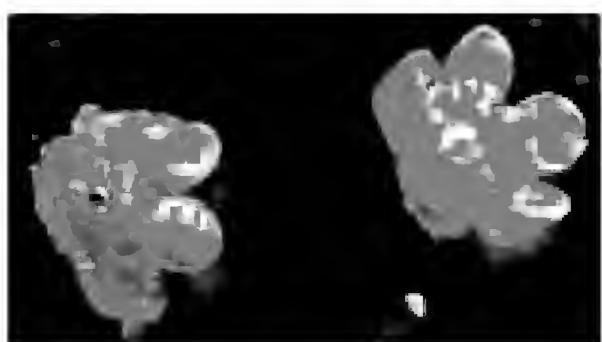


Side view of the calyx enlarged about 8x.
Sepals are 0.20 cm x 0.10 cm



Apices of corolla outside left and inside right enlarged about 8x. Apex is acute, deeply cut, sinuses sub-conduplicate, outside glabrous, inside pubescent.

Sinus – sinus	0.40 cm
Sinus – center	0.35 cm
Sinus – apex	0.62 cm
Apex – center	0.85 cm
collar diam.	0.12 cm



Corona enlarged about 8x. Bottom left, top right.
Glabrous, outer apices raised. Outer lobes obtuse, inner lobes spatulate.

Apex – apex	0.20 cm
Widest	0.14 cm

Pollinarium enlarged about 165x.



Pollinium

length	0.57 mm
Widest	0.25 mm

Retinaculum

length	0.20 mm
shoulder	0.12 mm
waist	0.06 mm
hip	0.09 mm
ext.	0.02 mm

Translators

length	0.10 mm
depth	0.02 mm

Retinaculum: S Pollinia inner end. R Translator/caudicle: ls/o ?

Hoya corollavillosa Kloppenburg sp. nova, holotypus #45477 (UC) hic designatus. Collected by Ramos & Edano in 1925. This sheet had two different flowers on the sheet. This is the second flower. Section Physostelma. This species has two unique floral features. The inner corolla surface is villose, only one other hoya at this time has this feature along with the other characters, *Hoya mindorensis* subsp. *lagunaensis* Kloppenburg. Next the cone shaped stylar crown. Five present species are like this: *Hoya meliflua* (Blanco) Merrill 1918; *Hoya merrillii* Schlechter 1904; *Hoya multiflora* Blume 1823; *Hoya obscura* Elmer ex C. M. Burton 1986 and *Hoya wayetii* Kloppenburg 1993 none of which have the first character.

Following are parts photos and measurements:



Pedicel and calyx enlarged about 8x.

Pedicel curved, glabrous, terete, 2.20 cm long and 0.08 cm in diameter.

Calyx: sepals ovate 0.12 cm long and 0.06 cm widest, overlap about $\frac{1}{2}$ glabrous no cilia, ligules present. Sepals do not come near the corolla sinuses.



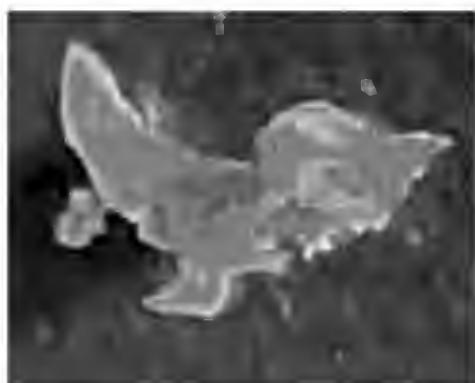
Outside view of the flower enlarged about 8x, sepals do not reach the corolla sinuses

Sinus – sinus ca.	0.24 cm
Sinus – center ca.	0.24 cm
Sinus – apex ca.	0.26 cm
Apex – center	0.30 cm



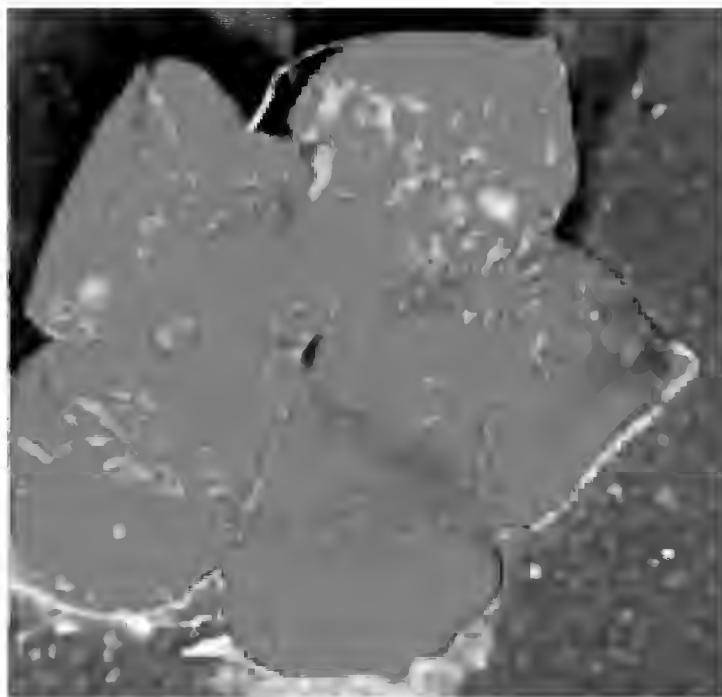
Side view of a flower enlarged about 8x. Corolla outside glabrous, inside villose with hair cells pointing inward (basally). Corolla lobe apices acute, thick cut about half way.

Apex – center 0.30 cm.

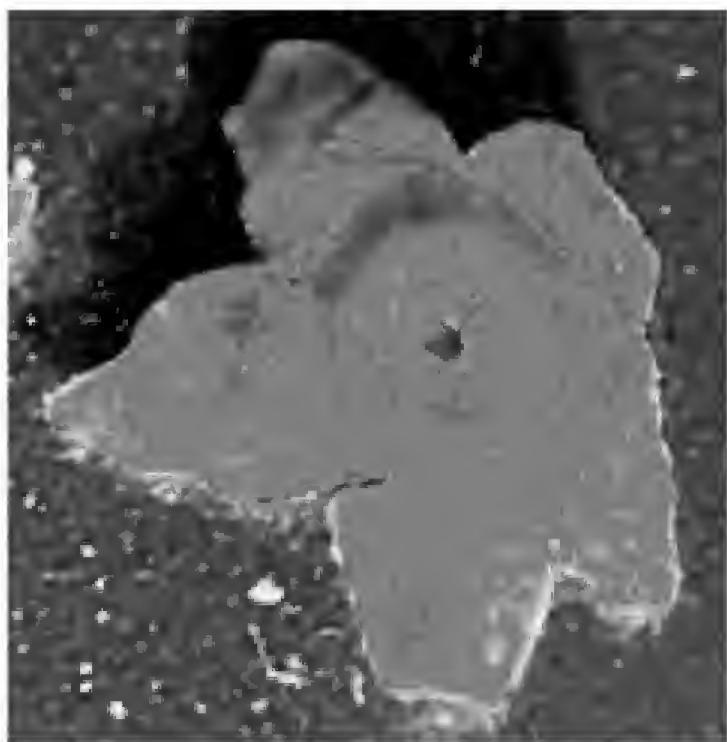


Side view of a coronal scale enlarged about 16x. Scale is sway backed inner lobe actually much above outer apex which is blunt obtuse, inner lobe exceeded by the anthers is acute spatulate.

Apex – apex 0.10 cm.



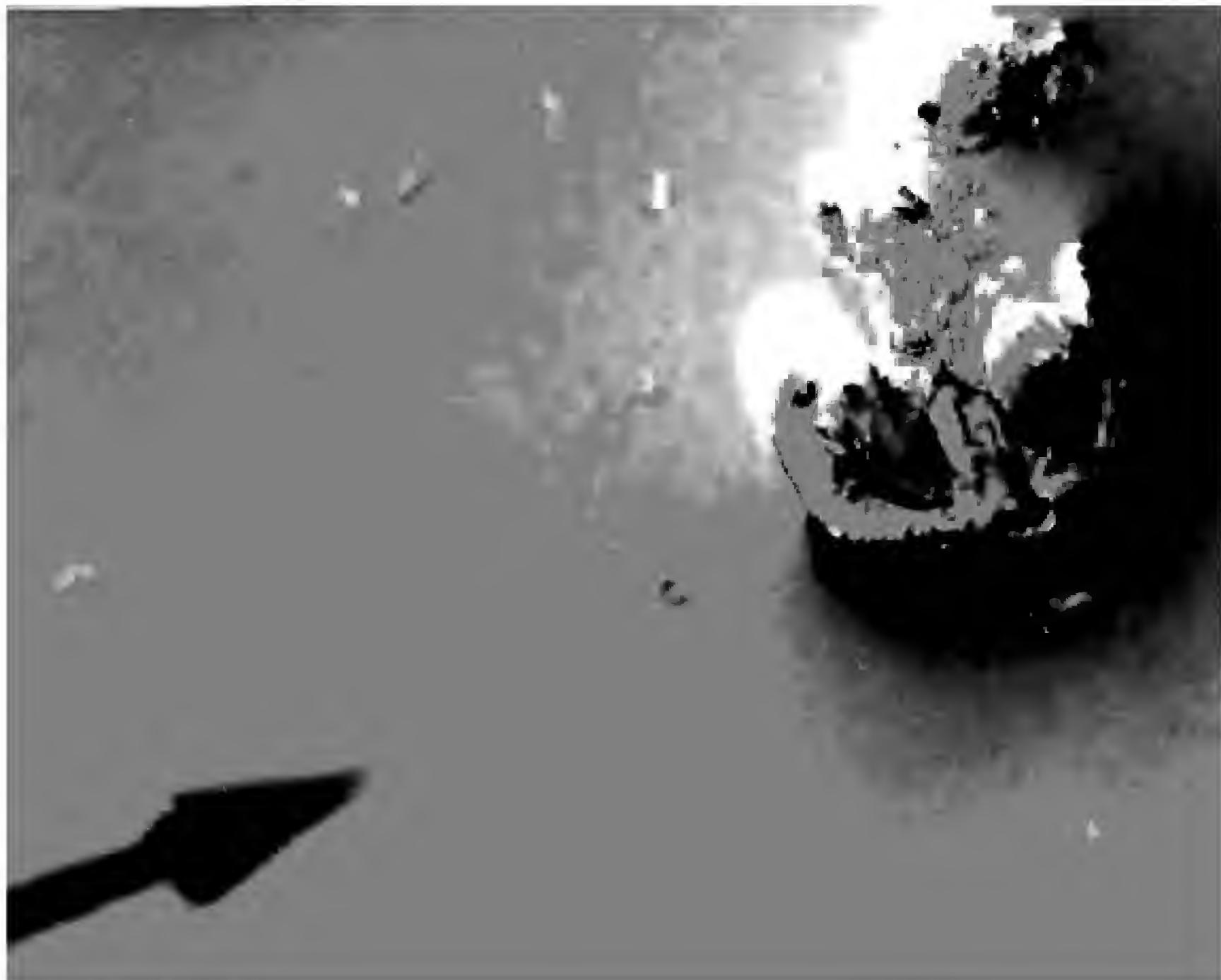
Inside view of the corolla enlarged about 8x. Lobes are very wide above the sinuses. Villose hair cells on this surface, not as prevalent under the coronal area in the center.



Outside surface of the campanulate corolla is glabrous, here enlarged about 8x.



Stylar crown greatly enlarged, columnar with a triangular shaped apex.



Pollinarium here destroyed.

Translator/caudicle type: fb/cw **Retinaculum:** E (elongate)

Hoya samoensis subsp. savai'iensis Kloppenburg 2017

Hoya samoensis subsp. savai'iensis Kloppenburg subsp. nova, holotypus W 1237 (HAW) hic designatus. The foliage here is smaller than Christophersen's description in 1935 of the species, here 5.5 cm x 2.3-3.4 cm compared to 7-10 cm x 3.5-3.8 cm. The type description of *H. samoensis* (1866) is not very complete and says the nerves are 5-tuplinerviis ? Christophersen says "prominently 5-veined" there are more differences here and discrepancies also. Here Peduncle 5.5 cm. Christophersen says 1.5-2 cm; pedicels here 1.4 cm vs. 1.5-2 cm long. The type mentions Corolla "extus glabris, intus puberulis outside glabrous inside puberulent" Christophersen says "pubescent on the inner surface" here it appears the inner surface is glabrous ? One feature here is the coronal ends turn down slightly not shown nor mentioned in the type description, the differences are enough to assume this is a different species but with caution I hereby designate it a subspecies.

Description of the Herbarium sheet below by Dr. Art Whistler:

W 1237 as *Hoya samoensis* Seemann. 29 Nov. 1973. Savai'i, Samoa. Vine with milky juice and greenish white flowers hanging in trees in the forest at Letolo plantation at Palauli. Elevation 200m. Envelope with ca. 12 flowers; 2 stems 1 with peduncle & cluster, the other 4 leaves, long rooting and short adventitious roots along the stem of latter branch. Leaves glabrous, ovate-elliptic attenuate, apex acute, base narrowly rounded. 5.5 cm. long & 2.3 - 3.4 cm. widest, nerves 5 palmate, to apex anastomosing, visible upper more than lower surface, widest just below the middle. Petiole 0.7 - 1 cm. long, glabrous, grooved above, not filiform. Internodes 7.5 - 10.5 cm. long, terete, glabrous, 0.1 cm. in diameter. Peduncle 5.5 cm. Pedicels 1.4 cm. long, terete, glabrous. Calyx relatively large. Flowers rotate, corolla small; corona may reach the sinuses, outer apex sharply acute, inner slightly beaked.

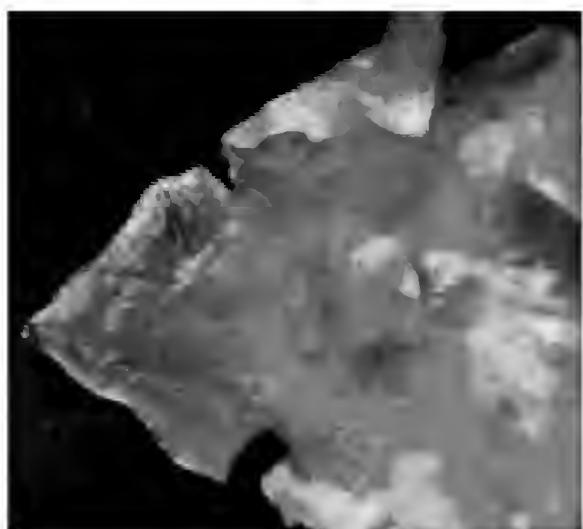
Photomicrographs and measurements follow:



View of the pedicel and calyx on the flower enlarged about 8x. Pedicel is glabrous, terete, (here) translucent 0.7 cm. in diameter tapering larger as it approaches the calyx. Sepals extend only 1/2 way to the corolla sinuses.

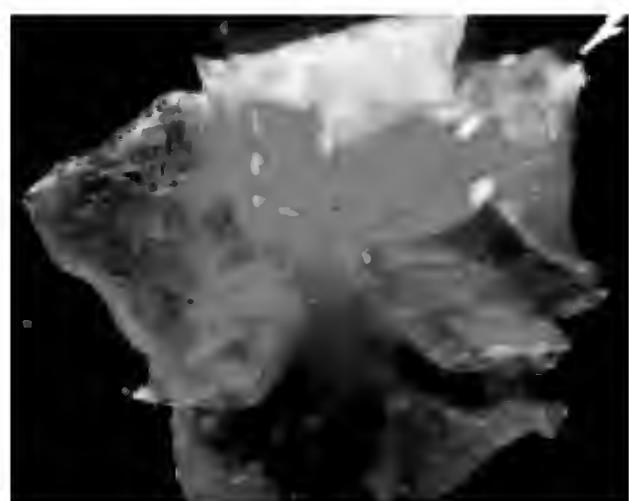


Inside view of the calyx and pedicel enlarged about 8x. Sepals are rather broad 0.16 cm. at the widest 0.16 cm long; 0.20 cm. long to the center. I did not observe any ligules. Ovaries are narrowly dome shaped 0.10 cm. tall and the base pair 0.08 cm. wide.



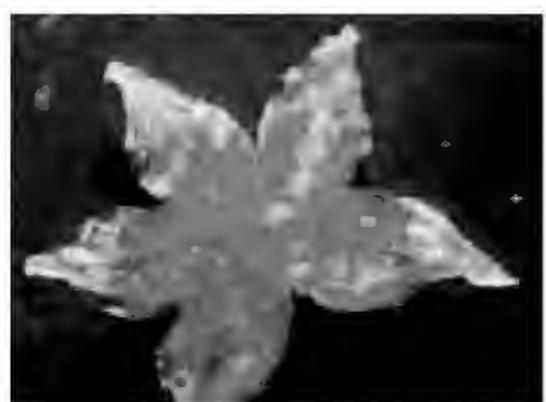
Corolla outside view enlarged about 8x. Outside glabrous. Central collar 0.10 x 0.08 cm opening, and 0.05 cm. tall.

Sinus - sinus	0.32 cm
Sinus - center	0.25 cm
Sinus - apex	0.55 cm
Widest	0.45 cm
Apex - center	0.65 cm

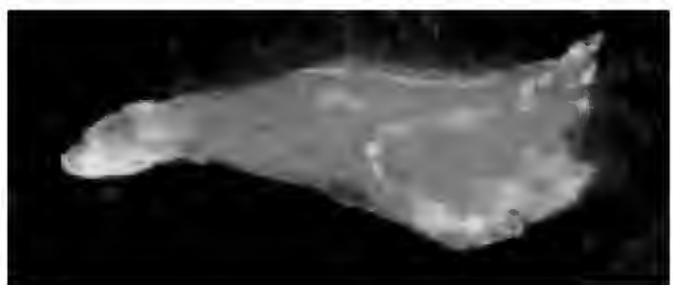


Top view of the flower enlarged about 8x. The corona is star shaped, glabrous, the outer apex acute, exceed the corolla sinus, center raised. Inner lobe very short, does not reach the center. Surface glabrous.

Apex- apex	0.33 cm
Apex - center	0.37 cm
Widest	0.17 cm
Retinaculum-ret.	0.07 cm
Ret. - center	0.06 cm
Anther wing - aw.	0.15 cm
Aw. - center	0.15 cm



Bottom view of the corona enlarged about 8x. This side is channeled and extends almost to the central column. Column is 0.05 cm tall. Surfaces are longitudinally sulcate.



Side view of the coronal scale enlarged about 16x. Inner lobe raised outer lobe slightly curved down, glabrous, longitudinally sulcate. Anther wings are deeply scythe shaped.



Front and side view of the retinaculum enlarged about 165x. The translators are fiddle shaped larger at the outer apex.



Pollinia enlarged a little over 100x. The caudicle is attached on the lower apex. The black arrow is 0.10 mm long and the base 0.05 mm and the stem 0.02 mm wide.



Pollinaria enlarged about 165x. Long pollinia and a very small retinaculum.

Pollinia

length	0.60 mm
widest	0.18 mm

Retinaculum

length	0.10 mm
shoulder	0.07 mm
waist	0.04 mm
hips	0.05 mm
extensions	0.04 mm

Translators

length	0.08 mm
depth	0.03 mm

Caudicle

bulb diameter 0.06 mm

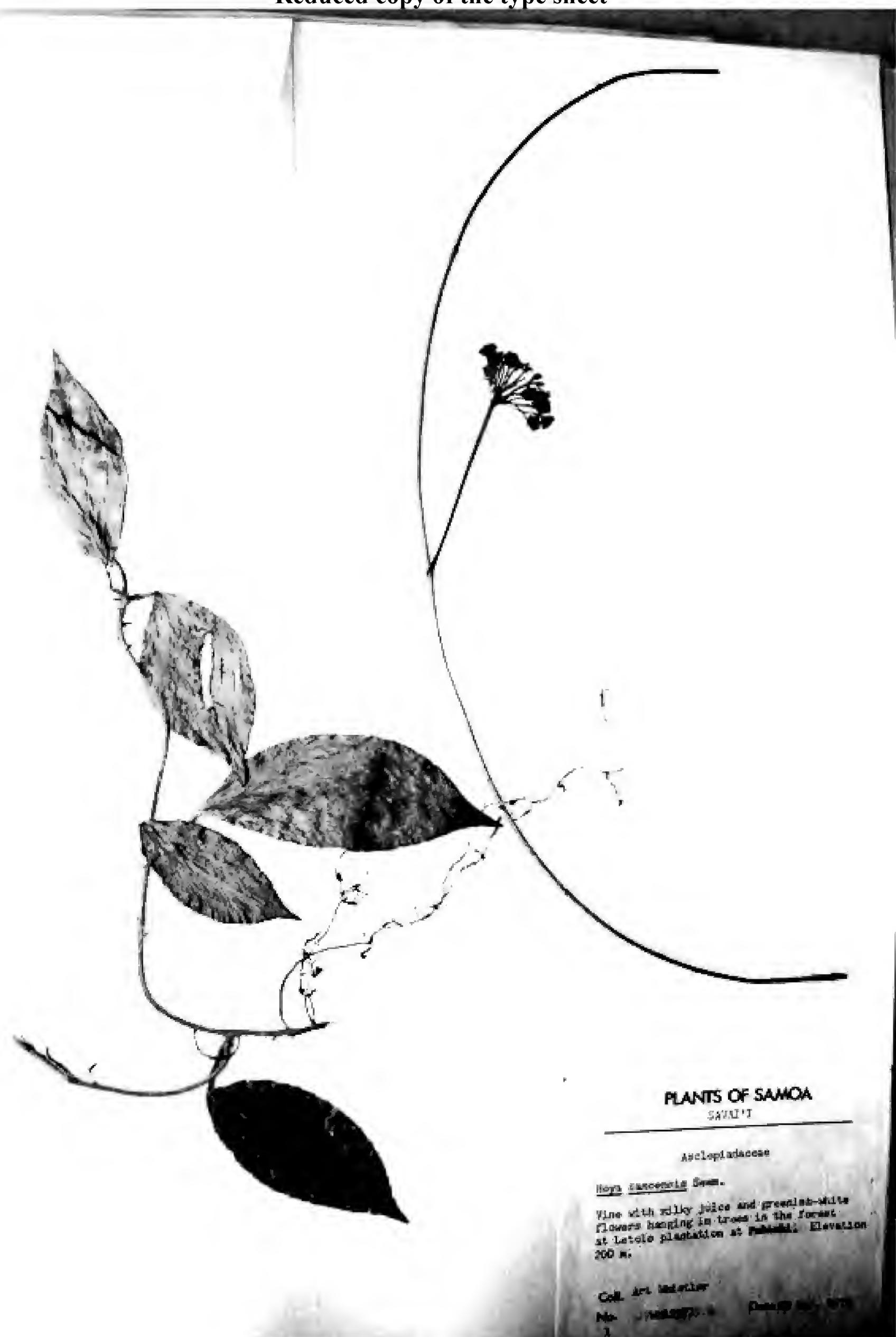
Translator/caudicle: ls/o

Retinacula: HU

Pollinia inner ends: R

Caudicle bulb: G

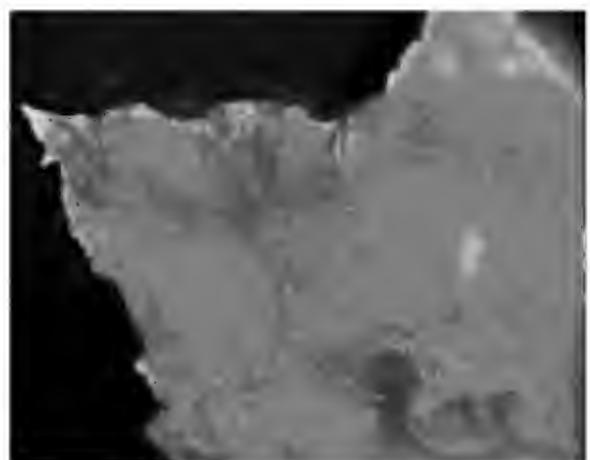
Reduced copy of the type sheet



Hoya olosegaensis Kloppenburg 2017 sp. nova, holotypus W 3081 (HAW) hic designatus. Similis *Hoya whistlerii* Kloppenburg 2002 sed omnis partus parviora. Pollinia hic 0.44 mm longa et 0.18 mm lata contrastre 0.59 mm longa et 0.22 mm lata; corolla diamanteo complanatus 1.04 cm contrastre 1.46 cm; coronae lobus brevior 0.20 cm contrastre 0.34 cm, differt

This new species is similar to *Hoya whistlerii* but the parts are smaller here the pollinia are 0.44 mm long and 0.18 mm at the widest compared to 0.59 mm and 0.22 mm. the corolla diameter flattened is 1.04 cm in contrast *Hoya whistlerii* is 1.46 cm and the coronal lobes length here are 0.20 cm long in contrast to 0.34 cm.

Micro photographs of sheet flower W 3801 and measurement follow:

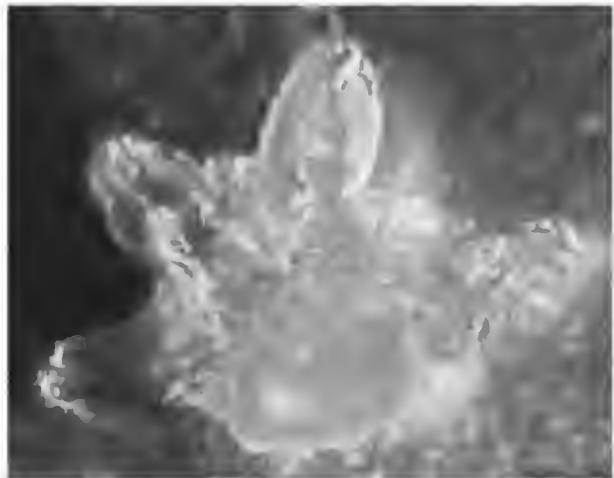


Corolla outside view enlarged about 8x. Corolla surface is granulose but glabrous, centrally there is a well developed thin walled collar 0.07 cm tall, opening is 0.20 cm x 0.14 cm. Lobes widen above the sinuses, apex is very shapely acute.

Sinus - sinus	0.42 cm
Sinus - center	0.43 cm
Sinus - apex	0.52 cm
Widest	0.52 cm
Apex - center	0.82 cm



Inside view of the flower enlarged about 8x. Corolla inside is puberulous. Corona is red, glabrous, and small with sway backed lobes, outer apex is obtuse and far from the corolla sinuses. Apex to sinus 0.20 cm Inner lobes are raised, spatulate, exceeded by the central anthers. Anthers bunched and crepe-like. Corolla is sunken under the corolla, less puberulose under the corona.



Bottom view of the corona enlarged about 16x. The lobes are channeled; anther wings are thick and waxy yellow. The central column is wide and flaring 0.18 cm at the widest centrally, 0.05 cm tall.



Side view of a coronal scale enlarged about 16x. The inner coronal lobe is bent back and with a deep dip in the dorsal surface, which does not show in this photo.



Retinaculum

length	0.17 mm
shoulders	0.11 mm
waist	0.05 mm
hip	0.08 mm
extensions	0.05 mm

Translator

length	0.13 mm
depth	0.03 mm



Retinacula type: S

Translator/caudicle: ls/o ?

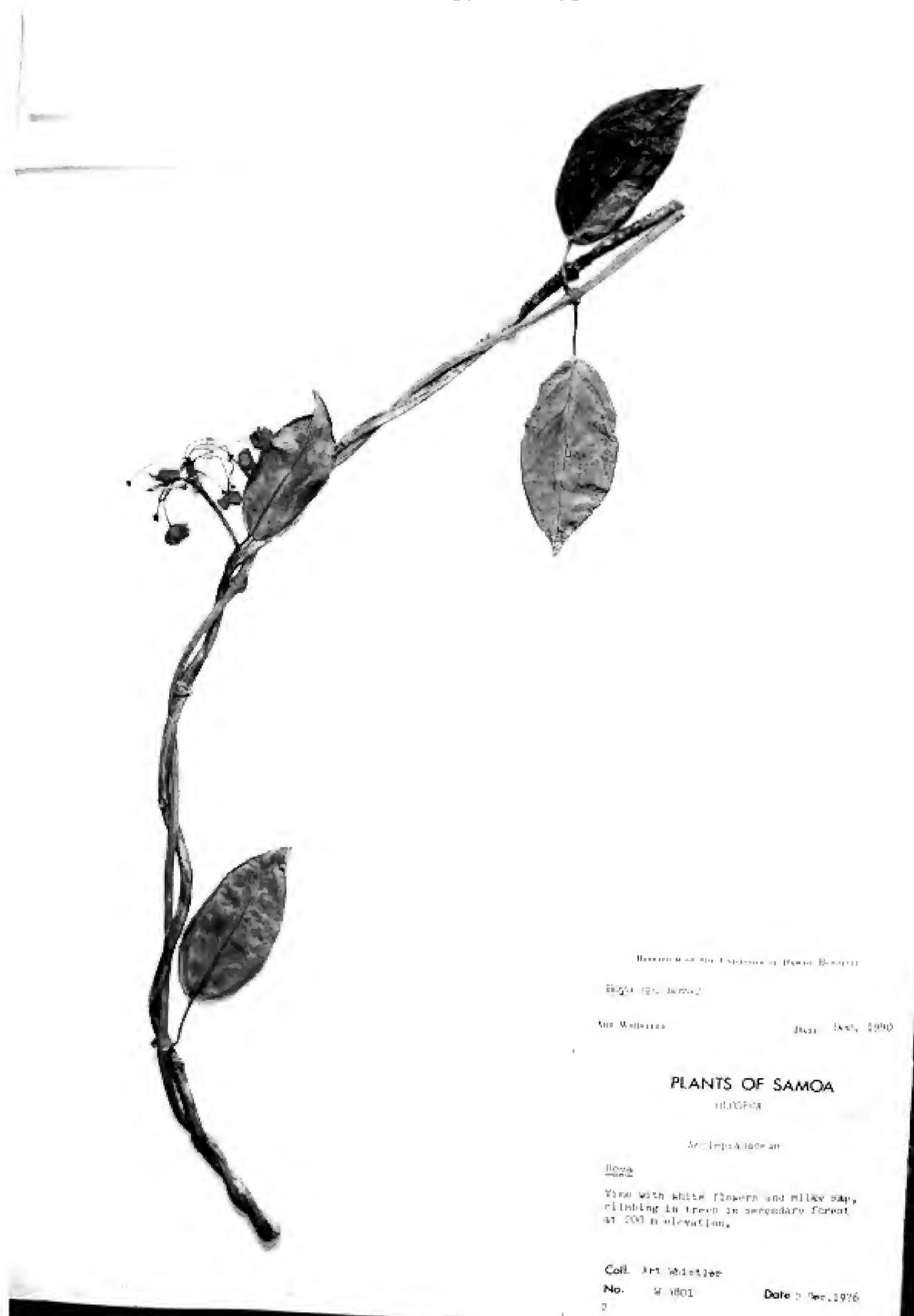
Pollinium enlarged about 165x. This structure did not remain with the caudicle and Retinaculum and may be skewed or flattened some. It appears to be distorted in the upper portion and the pellucid edge is barely visible.

Here the length is 0.44 mm
widest 0.18 mm

Data on sheet below by Dr. Art Whistler:

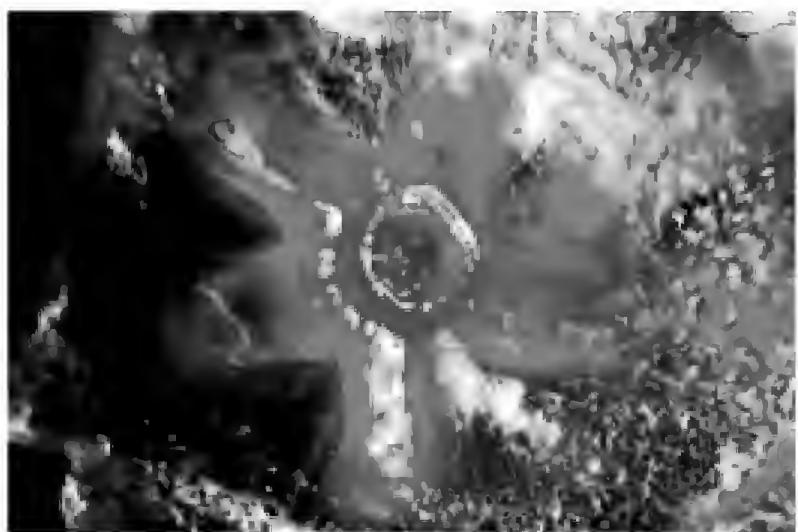
W 3801 Vine with white flowers & milky sap, climbing in trees in secondary forest at 200 m. elevation, Olosega, Samoa. 2 stems twining together, 1 pair of leaves and 2 singles, 1 flower cluster, 10 pedicels and 5 flowers. Leaves 5.5 cm. x 2.5-3 cm wide, ovate-elliptic shortly attenuate, base obtuse, glabrous, midrib protrudes below, pinnate-anastomosing venation. Internodes mostly 14 cm. long, nodes enlarged, glabrous, thick 0.3 - 0.4 cm. in diameter. Peduncle heavy 4 cm. long 0.15 cm. in diameter, enlarged toward rachis divided into 2 apically, bracteated. Pedicels filiform ca. 2 cm. long. Calyx very small, sepals narrowly triangular. Corolla rugose outside.

Below a reduced copy of the type sheet

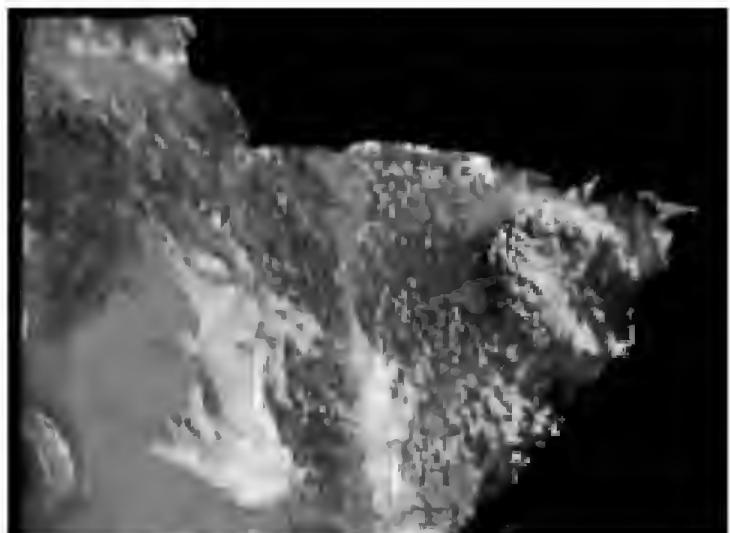


Hoya luatekensis Kloppenburg sp. nova, holotypus #7605 (HAW) hic designatus. Twenty six years after the sp. was collected we now give it a name ! This new species is named after the volcanic crater on the Island of Ta'u, Samoa, where it was collected by Dr. Art Whistler in December 1990. I have been unable to find another Samaon Hoya species with a pollinaria with these characters. There are four sp. in the Philippines with pollinia the same length and width but they vary in the retinaculum and translator/caudical types. At the end here I have included a comparison chart of Hoyas named from Samoa for parts comparisons with this new species.

Following are Micro Photos of Herbarium sheet flowers 7605:



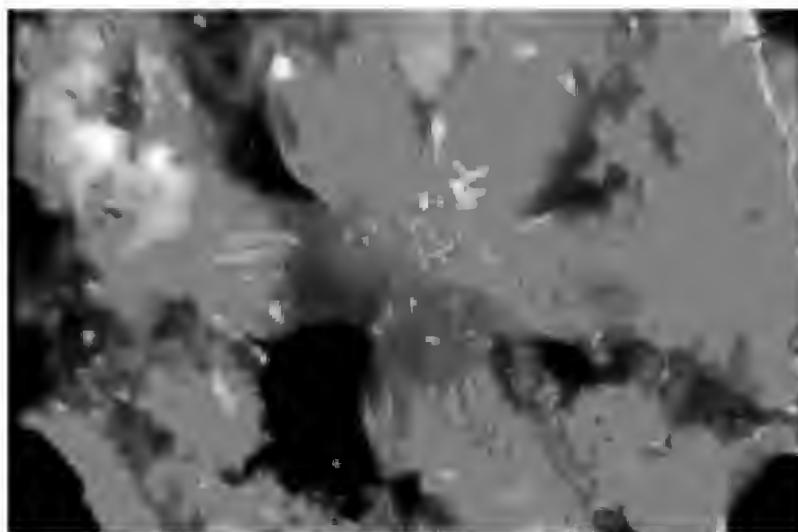
View of the outside of the corolla enlarged about 8x. No pedicel was available to photograph. Flower is large, outside surface is glabrous. Corona showing through the treated flower, central collar is darker colored and much thickened walls, opening 0.13 cm x 0.12 cm (oval shaped) and 0.05 cm tall, the area around in is a little depressed.



Corolla outside at the lobe area. The lobe is cut more than half way and the apex is acute.

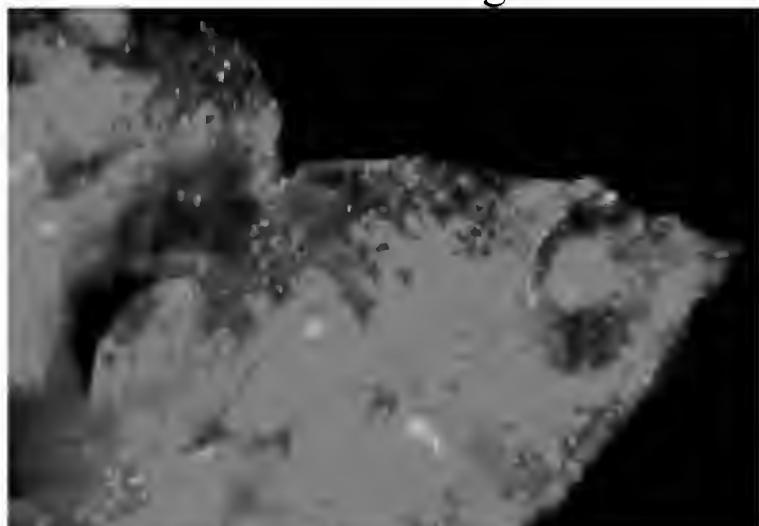
Sinus - sinus	0.67 cm
Sinus - center	0.53 cm
Sinus - apex	0.65 cm
Widest	0.70 cm
Apex - center	1.00 cm

The flower flattened is 2.00 cm in diameter.



Top view of the flower enlarged about 8x. Corolla inside is pubescent. Corona is small and darker colored, inner lobes are spatulate and raised do not reach the center, outer apex is obtuse; dorsal surface is concave with sharp margins, surfaces are glabrous and longitudinally sulcate. Outer apex does not come near the corolla sinus. A lower shelf

runs from the anther wings to the near the outer apex.



As above but showing the corolla lobe and coronal relationship to the corolla sinus.



Corolla inside view with the corona removed, enlarged about 8x. Collar protrudes here (as well as it does on the underside), edges are much thickened. There is less pubescence under the coronal area (central).



Corona top view enlarged about 8x.

Apex - apex 0.30 cm

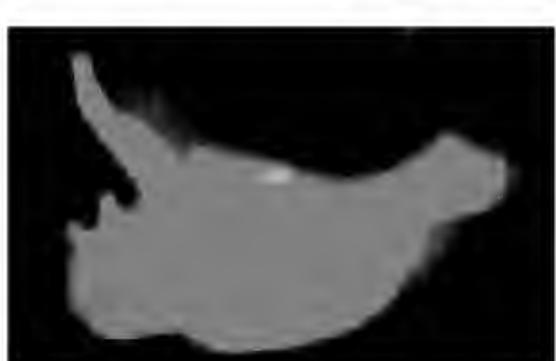
Apex - center 0.35 cm

Did not make other measurements.



cv

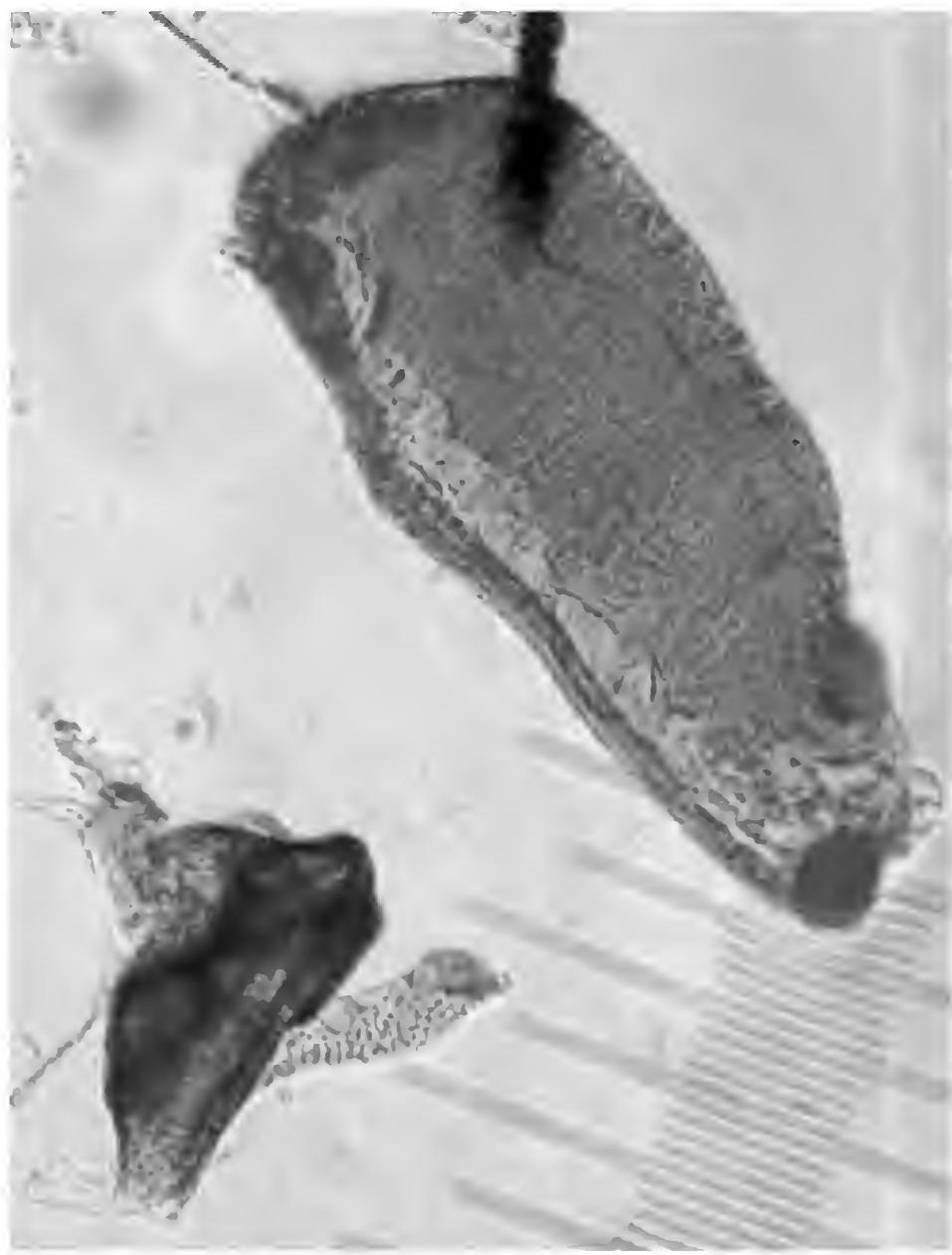
Bottom view of the corona enlarged about 8x. The lobes are channeled almost to the central column. The lower scale side lobes form the sides of the groove; sides are longitudinally sulcate.



Side view of the corona enlarged about 16x. Inner lobe here is long, outer apex rounded with lower side lobe almost reaching the outer apex.

Description of the herbarium sheet by Dr. Art Whistler:

7605 Vine with white flowers 7 milky sap, common in the forest on the east rim of Luatek Crater at the northeast corner of the island, 350 m elevation, Ta'u, Samoa. 1 stem 3 pairs of leaves + 1. Heavy stem 1 cluster with 7 pedicels, envelope with 3 flowers. Leaves glabrous, elliptic-ovate, apex tapered attenuate, base obtuse 5.5 - 6 cm long x 2.5 - 3 cm widest nearer base, venation obscure pinnate (base narrowly cordate). Petioles very long, 1.5 cm, grooved above, glabrous. Internodes 0 - 11 cm long, glabrous, nodes not much enlarged, 0.3 cm in diameter. Peduncle fine 4.5 cm long, terete, glabrous; rachis very fine bracteate, round, ca. 1 cm long, glabrous. Pedicels filiform, terete, glabrous, 2.7 cm long. Calyx extremely small. Corolla cupped, glabrous outside, finely pubescent inside. Envelope with 3 flowers.



Pollinium enlarged about 165x.

length	0.47 mm
widest	0.20 mm

Retinaculum on the left with translators attached enlarged about 100x. The object is not lying flat, a little at an angle.

Translator/caudicle: ls/o

Retinaculum: HU

Pollinia inner ends: R

Caudicle bulb: G



Retinaculum also enlarged about 165x, again skewed with translator and caudicle on left side.

Retinaculum

length	0.17 mm
shoulders	0.14 mm
waist	0.06 mm
hip	0.09 mm
extensions	0.04 mm

Translator

length	0.18 mm
depth	0.06 mm

Caudicle bulb cup shaped (ascus) 0.16 x 0.06 mm

A Reduced copy of the type sheet follows



Hoya Comparisons

	<i>pottsii</i>	<i>pycnophylla</i>	<i>samoensis</i>	<i>upoluensis</i>
Date pub.	1830	1908	1866	1893
Altitude		10m	300m	600m
Leaf base	ovate-cordate acuminate cordate glabrous	thick, leathery small & narrow	elliptic-ovate acuminate broadly cuneate glabrous	elliptic-lanceolate acuminate narrow
length		9-10 cm	7-10 cm	7-15 cm
width		2-3 cm	3.5-5.8 cm	
Nerves	not below 3 distinct above palmate	both surfaces 5 tuplinerved	both surfaces 5 tuplinerved	both surfaces 5 tuplinerved
Petiole	1.2 cm	1 cm	1 cm	2.5 cm
Peduncle	5 cm	5-6 cm	5.5-6.5 cm	3-5 cm
Pedicels		1.6 cm	1.5-2 cm	2-2.5 cm
Calyx	ovate	oblong 0.15 cm glabrous just reaches sinus	0.15-0.2 cm glabrous does not reach sinus	narrowly rounded 0.2-0.25 cm glabrous just reaches sinus
Corolla	glabrous out pubescent in globose tight 29 flowers	glabrous 0.9- 1.0cm small 20 flowers white	glabrous out pubescent in 1-1.2 cm 20 flowers white	glabrous 1.2- 1.5 cm many white/purple center
Corona		ovate-elliptic both ends acute 0.35-0.4 cm long 0.15-0.2 cm wide concave		0.5 cm long 0.2 cm wide 0.12- 0.15 cm diam.

Hoya Comparisons

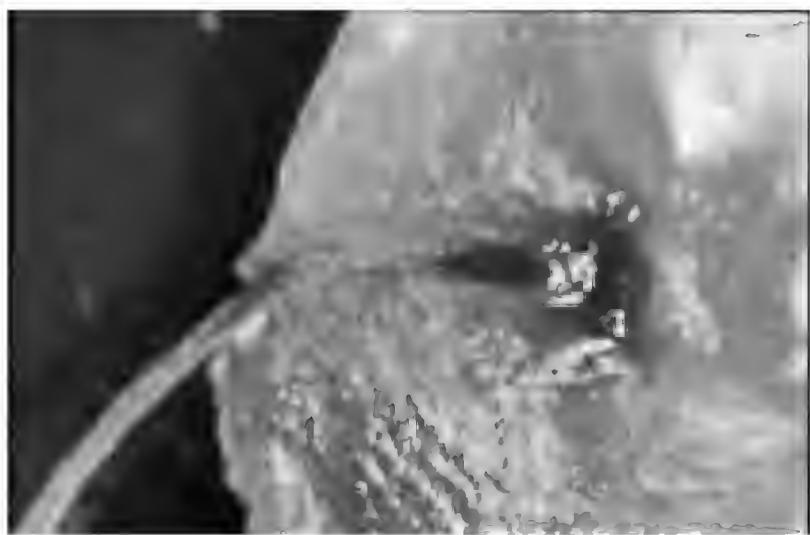
	attenuata	betchei	chlorantha	filiformis
Date pub.	1935	1908	1908	1908
Altitude	750m	high	300m	low
Leaf	elliptic-lanceolate attenuate	elliptic-lanceolate leathery	leathery pinnate-reticulate	lanceolate-ovate pinnate-reticulate thin
apex	acute	acute	narrow acuminate	acuminate
base	obtuse	obtuse	narrow	
	glabrous	glabrous	glabrous	
length	5-8 cm	6.9-9.5 cm	10 cm	6 cm
width	1.6-2.8 cm	1.8-2.3 cm	2 cm	2cm
Nerves	margins revolute pinnate anastomosing netted	pinnate	pinnate	distinct upper reticulate
Petiole	0.8-1.1 cm grooved glab. or pub.	1 cm	0.8 cm	0.8 cm
Peduncle	1-2 cm glab. or pub.	5-6 cm deciduous		0.7-0.8 cm
Pedicels	2 cm glab. or pub.	3.5 cm	3-4 cm	0.7-0.8 cm
Calyx	obtuse glabrous 0.1-0.15 cm	ovate-obtuse ligules glabrous 0.2 cm	oblong- lanceolate ciliate	lanceolate acuminate
Corolla	glabrous out pubescent in 1.0 cm creamy white	campanulate glabrous out. pubescent in ciliate 2.2-2.4 cm few large flower	flat glabrous out. pubescent in 1.7 -2.0 cm less than 0.9 cm green/ 15-25	glabrous glabrous white
Corona	acute in obtuse out 0.15 cm		obtuse	acute obtuse

***Hoya whistlerii subsp. faleuluensis* Kloppenburg 2017**

ISSN 2329-7336

***Hoya whistlerii subsp. faleuluensis* Kloppenburg subsp. nova, holotypus #7989 (HAW) hic designatus. Collected 8 January 1991 by Dr. Art Whistler in Ta'u, Samoa. Similis *Hoya whistlerii* Kloppenburg 2002 sed proximus omnis partes brevior. The pollinium are shorter and more narrow, otherwise similar to *H. whistlerii*, the corolla is here campanulate and smaller in diameter 1.20 cm compared to 1.94 cm. differt.**

Micro photographs follow for the above sheet:

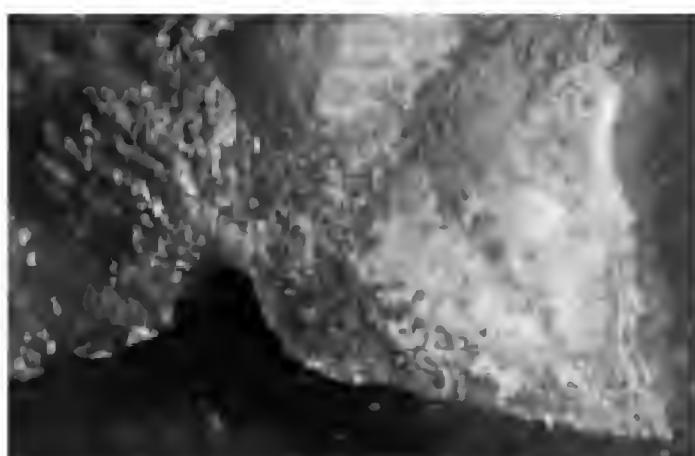


View of the pedicel, calyx and outside of the corolla enlarged about 8x. The calyx is small and does not reach the corolla sinuses. Pedicel is shriveled and a darker color, 2.4 cm long. Outside surface of the calyx is granulose.



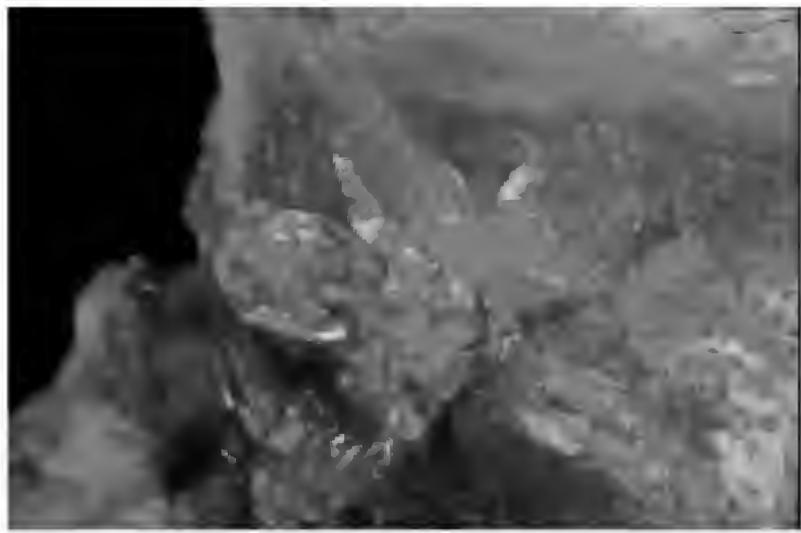
Pedicel, calyx and ovaries side view, enlarged about 8x. Pedicel is terete and glabrous. Calyx is small with cilia, inside smooth and shiny thickened centrally, otherwise membranous. Ovaries are dome shaped, 0.14 cm tall and 0.10 cm wide at base pair. Sepals 0.15 cm long 0.15 cm apex to the center 0.20 cm; at the widest near the base, plump ligules present.

Below: Outside view of the corolla at the lobe apex enlarged about 8x. Finely puberulent on this surface, widest just above the sinuses, apex acute, cut more than half way.



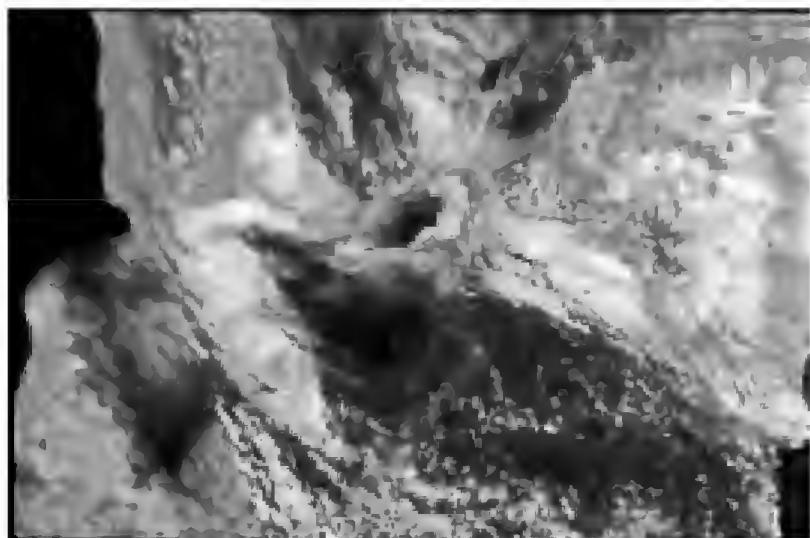
Sinus - sinus	0.55 cm
Sinus - center	0.50 cm
Sinus - apex	0.65 cm
Widest	0.65 cm
Apex - center	0.97 cm

Flower flattened is 1.94 cm in diameter, a relatively large flower.

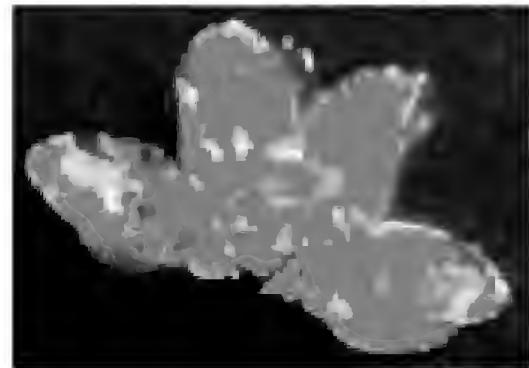


Inside view of the flower enlarged about 8x. Corolla inside is pubescent with stiff white stellar hairs, sparse under the corona. Corona inner lobe raised, spatulate, relatively long which reach the center, outer apex obtuse, dorsal concave.

Apex - apex	0.34 cm
Apex - center	0.34 cm
Widest	0.18 cm



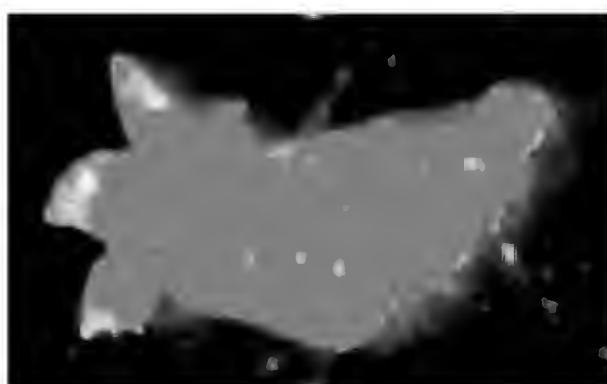
Inside view of the corolla with the corona removed enlarged about 8x. The pubescence on this surface diminishes as it approaches the central collar.



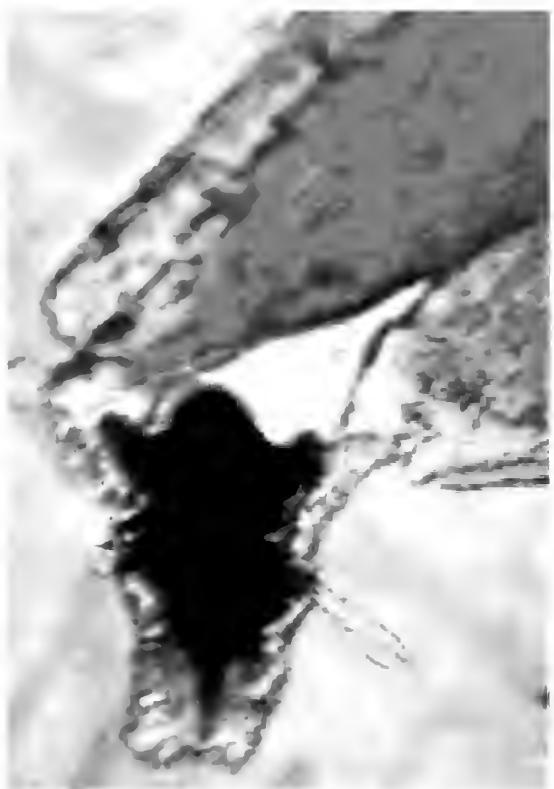
Top view of the corona, one lobe missing, there is a lower shelf like lobe starting at the anther wings extend to near the lobes outer apex. Dorsal edges are sharp, outer apex also raised a little.



View of the underside of the corona enlarged about 10x. The scales are channeled nearly to the central column, which is short. The lower side lobes that make up part of the groove sides do not extend to the scale outer apex. Inner edges (here yellow) are thickened and have rounded edges.



Side view enlarged about 16x, to better show any detail. The lobe back is swayed, both ends raised, inner lobe is spatulate covering the triangular creped anthers, scale is relatively thick.



Retinaculum enlarged about 165x. Note the horns at the shoulder extending backward from this region. The translators are close to the retinaculum sides here and the caudicle is stretched out above.



Pollinarium enlarged about 165x.
Retinaculum here skewed to one side.

Pollinium

length	0.55 mm
widest	0.21 mm

Retinaculum

length	0.15 mm
shoulders	0.12 mm
waist	0.08 mm
hip	0.10 mm
extensions	0.05 mm

Translator

length	0.13 mm
depth	0.02 mm

Caudicle

bulb diam.	0.06 mm
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Translator/caudicle: ls/o

Retinacula type: HU

Pollinia inner ends: R

Description of the herbarium sheet #7989 by Dr. Art Whistler:

Hoya sp. 9 Jan. 1991 Vine with white flowers, occasional as a climber in trees along the Faleulu stream course at 350 m. elevation. Ta'u, Samoa. 2 stems both with peduncles and one with a pod, one with a flower cluster 23 pedicels most with flowers. Leaves ovate-elliptic apex tapered acute base rounded, glabrous, opposite, nervation pinnate obscure, anastomosing, midrib slightly extended below sunken a little above 5.5 - 7.5 cm. long x 2.4 - 3.6 cm. broad in the middle. Petiole glabrous, terete, 1.2 - 1.6 cm. long, grooved above. Internodes terete, glabrous same color dried as leaves and petioles, 3.5 - 12 cm. long 0.2 cm. in diameter. Peduncles 4- 6 cm. long, terete, glabrous, mostly straight, 0.1 cm. in diameter. Pedicels all same length, terete, glabrous, filiform 1.1 cm. long x 0.5 cm. in diameter. Rachis tapered finely bracteate, here 2 are 0.8 cm. long, glabrous. Pod needle like 5 cm. long, glabrous tapering to an acute apex. Calyx small, flower campanulate.

Reduced copy of the type sheet

